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A
SURE GUIDE
IN
SICKNESS and HEALTH.

A

78

SURE GUIDE

IN

SICKNESS and HEALTH,

IN THE

CHOICE OF FOOD,

AND

USE OF MEDICINE.

Containing an ACCOUNT

- | | |
|--|--|
| I. Of the Primary Material Agents in Nature. | Intermittent, Remittent, and Continued Fevers. |
| II. Of the Animal Oeconomy and Nature of Circulation. Of Animation, wherein it consists. | V. Of the Gout. |
| III. The General Causes of Diseases. The Nature, Qualities, and Choice of Food. The Danger of Intemperance in Eating and Drinking, and Advantage of Air, Exercise, and Sleep. Directions how to use the Non-naturals for the Preservation of Health. | VI. Of the Rheumatism. |
| IV. Of Nervous Diseases, Epilepsy, Apoplexy, Frenzy, Palsy. Nervous | VII. Of the Asthma. |
| | VIII. Of a Common Cold, Catarrh, Hectic Fever and Consumption, |
| | IX. Of Fevers and Infection. |
| | X. Of Dysenteries. |
| | XI. Of the Scurvy and King's-Evil. |
| | XII. Of the Leprosy. |

By WILLIAM SMITH, M. D.

Look round the habitable world, how few
Know their own good, and knowing, it pursue. DRYDEN.

L O N D O N:
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M. DCC. LXXVI.

SURE GLETS

IN

SICKNESS AND HEALTH

CHOTER T.O.S.

WALLINGTON
USE OF MEDICINE

THE NEW YORK

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TO THE
RIGHT HONOURABLE
LORD VISCOUNT
BARRINGTON,

His MAJESTY'S Secretary at War.

MY LORD,

HE that endeavours to soften the general unhappiness of life, may reasonably hope for the favour of every good man; but he must be allowed a particular claim to the benevolence of Your Lordship, whose studies and labours tend to alleviate the miseries of war.

To

To you, my Lord, whom a mighty nation has entrusted so long with the superintendence of its military power, and who have repaid its confidence with so much fidelity, it is well known that the great havock of war is not made in battle. Regiments are wasted and camps depopulated by unseen hostility and silent destruction, against which courage is unavailing, and dexterity is helpless. Those who defy violence sink under sickness; and armies, to which the publick prosperity or safety is committed, melt uselessly away by contagious maladies.

Many of the evils of war are implied in its nature, but many are likewise accidental and avoidable; to remedy those which may be cured, and to obviate those which may be prevented, I would gladly contribute;

bute; and an attempt so necessary will need little recommendation to those who desire, like your Lordship, the success of the British arms, and the permanence of British felicity.

I am,

MY LORD,

With the greatest Respect,

Your LORDSHIP's most obedient,

And most humble Servant,

WILLIAM SMITH.

Red-Lion-Square,
Jan. 24, 1776.

T O

TO THE
READER.

Whatever may be the merit of this publication, of one thing the reader may be assured, that neither the desire of appearing in public, nor any fordid and mercenary views, induced the Author to publish the following sheets; but a full persuasion that they will prove of benefit to mankind. He does not intend to amuse his readers by pulling down one system of phyfic, and building another; he rather chuses to take nature for his guide, and by the assistance of the most approved authors, to follow her step by step, that under her direction he may arrive at a rational knowledge

To the READER.

knowledge of the true source and cause of diseases, which he finds to be as simple in their nature as they are in their cure. Whoever bestows on the following treatise a serious and candid perusal, will be able to understand the general causes of diseases, and the nature and distinguishing symptoms of each particular complaint, which comes within the plan of this publication; and by paying due attention to the directions here given, will be qualified to prevent, mitigate, or remove most complaints.

The science of physic is here reduced to a few simple principles, by which diseases in general are explained and made obvious to the most ordinary capacity, as the author has studiously avoided all technical or scientific terms, which are not commonly understood; nor has he troubled and perplexed the reader with fancied figures and motions merely because possible. The symptoms of each particular malady are carefully enumerated, the method of cure pointed out, and the patient is directed to a proper choice in eating and drinking, air and exercise. The medicines here recommended,

To the READER.

mended, which are not in general use, will prove a valuable acquisition to the medical art, and in judicious hands will do wonders.

It would ill become a man of candour to say more of a medicine than it deserves, or to conceal its virtues when they are once ascertained. Deception is always dangerous; but when health and life, things of the utmost importance in this sublunary world, are concerned, it has the most baneful effects, and the danger lies in the natural disposition to encourage such deception. The basest of men, says a learned author, who by private or open violence, commit murder, seldom attack more than the life of a single individual; whereas a physician, who palms false practice upon the world, may have the lives of thousands to answer for, and may continue to murder even in his grave.

To a generous mind nothing can be more distressing than a fear of hurting that life or health which is with unlimited confidence entrusted to
his

To the READER.

his care; but to advance medical falshoods, and to sport with the lives of mankind, is the most execrable of all social wickedness.

The author hopes therefore the public will do him the justice to believe, till there be proof of the contrary, that he would not obtrude on it any medicine not possessing the virtues which he declares to the world it does possess. There is certainly an excellency in some medicines above others, and a greater aptitude and power in some than in others, and these powers and virtues may be improved to an astonishing degree; for such are the powers of nature, that we are far from being acquainted with their extent. Of this the author has had most convincing proofs in the cure of many stubborn and dangerous complaints by the assistance of the medicines occasionally mentioned in this, and a former publication, intituled, *Nature Studied*, &c.

There is perhaps no disorder incurable but old age, could we find proper medicines, and were
acquainted

To the READER.

acquainted with the true method of exhibiting them. When powerful medicines are in the hands of judicious physicians, who are acquainted with the animal œconomy, and can form proper indications, what wonders may be performed in the cure of diseases! But the best medicines may be misapplied, and when injudiciously and indiscriminately given without regard to constitution, age or sex, and other circumstances, cannot fail of doing hurt.

A physician, though he is well acquainted with the nature of the disease, if he has not sufficient medicines, properly qualified to reach the complaint, can never perform a cure. So that, in the cure of diseases, both judgment and sufficiently efficacious medicines are required.

The author proposes no specifics, as he thinks the notion of a specific inconsistent with reason, and unsupported in practice; but the medicines recommended to answer the purposes laid down in the following sheets, where the indications that require their

To the READER.

their use are particularly mentioned, if administered as there directed, will be found to deserve the character given of them. With these, and some other regulations which he could suggest, the Author undertakes to save the lives of hundreds in jail, camp and navy, who die of putrid fevers and fluxes, or other complaints to which their state of life renders them subject. The Tonic Tincture is also the best cleansing and healing dressing for cuts, wounds, bruises, ulcers and sores, that the author ever saw, or, as he believes, can be applied: and if he be fortunate enough to have an opportunity of giving public proof of what he undertakes, he doubts not but matter of fact will convince the world that he is no idle boaster.

Upon that candour he cheerfully relies with which this nation never fails to treat every endeavour to render the afflicted less unhappy. He proposes no nostrum, but wishes to direct the method of exhibition, as well as to confirm the virtues of the medicines here mentioned, before he makes them known. For these reasons he publishes

To the R E A D E R.

lishes this work, which if any of the learned con-
descend to criticise, all he wishes is, that sentiments
similar to those which induced him to compose it,
may direct their judgment, and prevail upon them
to labour with as much good-will, industry and
sincerity, for the public good.

A SURE

To the READER

What this work, which is part of the history of
the world, contains, all its writers, and its
readers, are to be informed, that it is not
a mere collection of facts, but a history
of the human mind, and of the progress
of knowledge, and of the state of the
world, and of the human race, and of the
state of the world, and of the human race.

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A
SURE GUIDE
IN
SICKNESS AND HEALTH,
IN THE
Choice of Food and Use of Medicine.

CHAP. I.

Of the Primary Material Agents in Nature.

THE frame of nature is a perfect, well-ordered machine, created, supported, and set in motion by the finger of God, and acts as a machine does by a connection and communication being preserved between all the distinct parts of it. If you interrupt the contact of a machine, you destroy its motion in all those parts from which the communication is cut off. The fluid æthereal matter of the heavens acts by impulse upon the solid matter of the earth, is instrumental in every one of its productions, and is necessary to all the state phœnomena of nature. Her two agents are air and fire.

B

Let

Let us first enquire what notions the ancients had of these two elements ; for whoever consults them will find they were in possession of much useful knowledge. Rabbi Eliezer, in the well-known book called the Chapters of Eliezer, says, “ From what place were the “ heavens *Shamajim* created? From the light of his “ clothes which he took and spread out like a garment, “ and they went on spreading, as it is said Ps. 104. *He has “ enveloped light like a garment, and spread the heavens like “ a curtain.* And the earth, from what was it created? “ From the snow that was under his throne, as it is said “ Job, chap. xxxvii. ver. 20. He said to the snow, be- “ come earth.” It seems that this Rabbi called *Shamajim* the vacuum or æther in which all the heavenly bodies roll, as is evident from several places.

In a book called *Medrash*, composed by Rabbi Joehanan the Nafhi or head prelate in Jerusalem, it is said that the heavens are a composition of *fire* and *water*, and therefore called *Shamajim* from the two Hebrew words *Esh* fire, and *Majim* water ; by which he certainly could not mean the heavenly bodies themselves, but the space in which they roll ; that fire and water were the two elements, and that the earth is a farther composition of them, compared to snow. If we go to the words of the creation, we shall find that light, *oor* in Hebrew, which also signifies fire, was the one and first element, from which the whole creation has been composed ; and that the *oor* mentioned in the third verse is quite a different thing from that mentioned Gen. i. 13. where it means the sun and moon ; whereas in the third verse it means the first element. There is also a passage of a Rabbi in the *Medrash*, which says, The *oor* which has been created no creature is able to behold ; which means, that

that the first elements were so subtile as to be insensible.

All ancient philosophers, though they admit four elements, fire, water, earth, and air, yet they say that there is one element common to all four, (which they call Elannar in Arabic, which signifies the *prima materia*) from which all these four have their origin in different composition only, and for that reason they all change into one another; the earth becomes water, the water air, and the air fire, and the reverse; the fire condenses into air, the air into water, and the water into earth.

Mimonides, in his book called *Moreh Nebuchim*, in the second part, chap. 30th, thinks that all the four elements are mentioned in the first chapter of Genesis; and also thinks that *Hofbek*, *darkness*, is meant by it; the elementary fire being colourless, and quite transparent. The four elements are mentioned according to their natural situation, the earth, and upon it the water, and the air, understood by the following words, *And the wind of the Lord moves upon the waters*; and the fire above the air; because, as the verse says that the air is upon the water, and that *Hofbek* the darkness, which is fire, is upon the *Teham*, which can be nothing but water or air; and since the word *Hofbek*, mentioned in the following verse, where he says, *And he separated light from darkness*, being different from the former, Moses gives a farther explanation in the 6th verse, saying, *And to the darkness he called light*. Mimonides says again, in explanation of the verse, “*And he divided between the waters which are*” “*under the firmament*;” that this division is not a local one, but a natural one; for which reason he repeats again in verse 6th, *And to the gathering of the waters he called seas*, to shew that the water mentioned in the 3d

verse is of another nature, and the firmament itself, in which Shemajim or heavenly bodies roll, has been formed out of the water: and there was one element which was called water, which was divided into three, the first became sea, the second firmament, and the third above the firmament. From which also appears that there is no vacuum at all. We find the same in Psal. 104. where he begins with light, saying, *He envelopes light like a garment, spreads out the heavens like a curtain, who has beamed with water his chambers, and made the clouds his chariot, and walks upon the wings of the air: he makes his angels wind, and his ministers a flaming fire.* Here the Psalmist explains metaphorically that all the powers of nature, and their different operations, consist in the different combination of these two elements, *fire and air.* He calls the powers of nature angels. He goes on to explain the fourth element, the earth, saying in the 5th verse, *He founded the earth upon her own basis, so that she never can be removed.* There is in Proverbs, chap. 30. ver. 4. the same account of the elements. There it is said, *who went up to heaven, and came down again; who has gathered the air in his hand, who has bound the water in a garment, who has established all the foundations of the earth?* Here it seems fire is comprehended under air. But what is more remarkable is in Eccles. when he mentions the four elements under the word *Abel*, which is translated *vanity*, but which, according to his derivation from *Bal*, is *mixture*; which shews that Eccles. was of opinion that all the elements are blended and mixed together. He begins with the earth in the 4th verse, saying, *The earth stands for ever.* And then with fire in the 5th verse, where he says, *The sun rises and goes down.* Then in the 6th he mentions the air, where he says, *The air goes round*
and

and round. And in the 7th verse he mentions the water, saying, *All the rivers go into the sea.*

In a book called the Book of the Creation, its being so ancient, that some would attribute it to Abraham the patriarch, we find the following expression: There are three beings, air, water, and fire, in every thing; in the human body; in the seasons, heat, cold, and temperate; and all these three are connected by one. The *wind* or air of the living God is one; two, air from air; three, water from air; four, fire from water. He does not mention earth, being only a composition of these three elements. He says farther, he has made out of *Tohu* a something, and he has made that which has no being; he has hewed great pillars from a subtile air which cannot be felt, water from the air; he has digged and hewed *Tohu* and *Bohu*, mire and dirt; he made them like a bed (of a garden) he erected them like a wall, covered them like a beam, poured water upon them, and they became earth.

In a treatise of the Talmud called *Hagiga*, we find the following explanation upon the words *Tohu* and *Bohu*. By *Tohu* is meant the yellow line which surrounds the world, and from which the darkness arises on the world, as it is said Psal. clxxxii. 12. He will make the darkness his hidden place, round the tabernacle a flow of water and thick clouds. And *Bohu* are the hidden stones sunk in the *Tohu*, and from them the water comes, as it is said in Is. xxxiv. 11. And he stretched upon her a line of *Tohu* and stones of *Bohu*. It is clear that the Talmud means by the yellow line, the orange colour which is seen in the clouds by the rising of the sun and her setting, and by which means darkness as well as light is produced. And by the stones the Talmud means the gross compo-

fiction of bodies, whose elements are nothing but subtile particles, which is expressed by the word *water*, as it is the opinion of many of the ancients, especially Rabbi Levi, the son of Gerſhon, that by the word *Water* mentioned in the first chapter of *Genesis*, ver. 2. is meant a *chaos* or first element. And they say, in explanation of this verse, And the *air* of the Lord lay upon the face of the waters ; and the Lord said, Let there be light or fire. The first element was air, and attributed to God ; the composition of which was water, and the air put in motion produces light or fire. It is very remarkable, that the word *oor* in Hebrew signifies *motion*. Hence, in the Rabbinical Hebrew, there are the same letters for *air*, only with the addition of a jod, which is according to the rules of changing nouns into other nouns.

Plato, who is said to have borrowed the doctrines in his *Timæus* from the writings of Philolaus, a disciple of Pythagoras, accounts for the animal functions from the intermixture of air and fire acting through the whole frame of the body. To fire he ascribes the office of expanding within and acting through the whole body outwards, while the element of air compresses from without, and counteracts the force of the internal fire. By the ministry of these two causes a perpetual circulating motion is kept up.

The Phœnicians, as we find by Hermias, attributed to air and fire the power of giving motion and causing effects, and call æther nature's universal agent. Zeno, leader of the Stoics, taught that nature is supported by an elementary fire diffused through all the parts of it. Aristotle, the founder of the Peripatetics, had the same opinion that fire and air are the efficient causes of all nature. Hippocrates, the father of physic, and deservedly

fervedly the most esteemed author of antiquity, who derived his skill from a diligent study of nature, says the element of air has a dominion over the human body, and is the principal source of all things that happen to it, whether good or bad: its power and influence deserve well to be accurately examined. And of fire he says, that it is most powerful, hath an universal dominion, and governs all things according to the order of nature, while itself is silent, invifible and imperceptible in its operations, and is in perpetual action. The Persians and Chaldeans believed that all space was filled with air, and what they called an all-nourishing æther, to which they joined an intelligent and life-giving fire. Seneca speaks of air and its influence as a physical cause in the same way as Hippocrates. The cohesion of our bodies depends upon it; and fire, he says, occupies the whole world. Lord Bacon calls heat and cold Nature's two hands, whereby she worketh; and was of opinion, that all space is filled with an aerial or subtile spirit, which governs nature, and without which no true analysis and the indications of the proceedings of nature can be made. The learned Boerhaave calls fire the chief cause and principle of almost all the effects cognizable by our senses, yet itself is imperceptible by any sense, being so incomprehensible by reason of its extreme minuteness, that it eludes our nicest searches. And the element of air is described by the same author as an universal, necessary, and most efficacious instrument, which nature is perpetually applying in almost all her works. The learned Dr. Berkley, bishop of Cloyne, says, Without instrumental and second causes, there could be no regular course of nature; and without a regular course, nature could not be understood. The proper real agent and

cause which actuates, and under Providence governs this mundane system, is pure æther, or the substance of light, than which nothing is more active and subtile. The very ingenious Abbè le Pluche, from his enquiries was led to declare, that there are but three known fluids in nature, which by their continual activity are the principles of all motion, and these are light, fire, and air. How precisely does this passage coincide with the judgment of antiquity! The principle that was maintained as the fundamental truth in physics, above two thousand years ago by Zoroaster and Plato, discovers itself again at this distance of time, to a naturalist, who enquires in a proper manner. This coincidence would have happened oftener than it has, if philosophers had conducted themselves as the scholars of nature, and not as its masters. For nature is the same now as it was then, and experiment duly consulted would speak the same language in all ages. The fault is in men, who by affecting to surprise the world with building things high and marvellous after a model of their own framing, fall into confusion and self-contradiction, while they overlook what is truly valuable, because it is cheap and common, and hath not an air of mystery and scientific darkness.

Fire is the cementing principle or bond of union which connects the ultima corpuscula of bodies to one another, and prevents them from running into a state of decomposition and putrefaction, to which all animal and vegetable substances have a natural tendency, and into which they precipitately run when divested of this principle. It is the *pabulum vitæ*, which preserves and supports animal life; without it no creature can live. It is the mechanical agent principally concerned, not only in the formation, growth, and support of animals, but also of vegetables.

vegetables. From all experiments it plainly appears that, in the common course of things, neither a plant nor an animal was ever yet formed or supported without air. An egg has air inclosed at one end of it. The eggs of a silk-worm will not be hatched in an exhausted receiver, though it is exposed to the sun's rays.

Air has an absolute dominion over the whole vegetable kingdom; and as far as we are able to judge, from what appears to us, the circulation of the blood and all the animal functions are sustained and carried on by the air, which is to the body what the weight is to the clock. And what is still more remarkable, without a communication with the atmosphere, life cannot be supported long even in a pretty large body of air, when it has no communication with the atmosphere. The agency of the circulating air is absolutely necessary towards the evolution of animalcula, besides the mere existence of their ova, deposited in a proper nidus; it is found necessary not to the inside only, but also to the outside of a shell, within which an animal is to be formed. Chickens cannot be produced in an air-pump, placed in a proper degree of heat, though none of the air is extracted. No animalcula will be found in meat, shut up from all contact with the atmosphere, though a pretty large quantity of air is inclosed with it. The action of the atmosphere is requisite in order to hatch and communicate a vivifying principle to them, and a pretty large quantity of air, that does not communicate with the atmosphere, seems insufficient for the purpose. Heat too must be joined to this circulating air, otherwise the ova cannot become living creatures. But this heat must be various for the generation of the various species of beings to be envelopped.

That

That all bodies contain fire, every one may prove by experiment. Rub only one bit of wood against another, one stone against another, metal against metal, &c. and the fire becomes visible. Shake quicksilver in an exhausted receiver, and you will perceive flashes of fire. By fire I mean elementary, solar, and electrical fire, as we have every possible reason to conclude, they are one and the same substance, acting in several capacities. The element of fire appears to have such a continuity of parts, and such a degree of force in its motions, as would not have been believed without some sensible and immediate demonstrations of it. It is the same fluid that increases the bulk of bodies when they are heated, by entering forcibly into their pores and driving their constituent particles farther asunder. The cohesion of brass or iron is too weak to resist the force of it. About one thirtieth part of the bulk of boiling water is occupied by fire. Hot air is increased by one third of its bulk, and the dimensions of the watery particles in the air, and the air itself will be different under all the various degrees of heat; and as the degrees of heat are always in a fluctuating state, this liquid in common with air and all other bodies whatsoever, will undergo a perpetual oscillation. Nothing can resist the force of fire, which is a material agent of nature, of sufficient force to overcome and undo the strongest effects vulgarly ascribed to cohesion. Fire is the great catholic dissolvent of nature, as the chymists all allow. It will dissolve the union of the particles of water, and raise them aloft in steam and vapour. The ordinary heat of the sun has a like effect on the waters of the ocean. All other substances as well solid as fluid, are subject to a separation of their parts by its entrance. The hardest of metals, how closely so-

ever

ever their parts may be connected, are easily dissolved and rendered fluid by the heat of a furnace. How is the greater weight and larger bulk of mercurius calcinatus accounted for, since it acquires both in the process? It must be from the addition of some substantial matter; and to judge from the effects, what is this more likely to be than that fine subtle substance, which is the greatest spring of motion and life, the only active body in nature, and the cause of activity in others? It is certainly the cause of the activity of the different preparations of mercury, and is certainly qualified to separate its particles, and reduce it to its original discontinuity of atoms.

Philosophers indeed affirm that matter is divisible in infinitum, yet I conceive the infinite divisibility of any given extension is a metaphysical or mathematical sophism, for what God created an atom or unit the nifus of the whole creation upon it could not bruise or separate in two; indivisibility is one of its essential inherent properties. One atom may be divided from another, but no atom can be divided from itself, because its substance does not exist by cohesion of parts, or application of one substance to another, but exists in an original continuity of substance, which is indissolveable and unchangeable but by annihilation. Matter or medicines may be divided into such minute parts, as to escape almost the power of imagination, each of which however well retain the powers and virtues, which before were proper to the whole mass. Chymical preparations often create new bodies, or very materially alter the original virtues and properties of matter; but by trituration, carried to a proper extent, you preserve the original virtues and properties of bodies at the same time that every particle

ticle is brought forth into action, and exerts its powers and virtues. Mercury, for example, is allowed by all to possess very great virtues; if it was united to any body to which it closely adheres, and was by that means divided into its most minute parts, without undergoing an unnatural chymical change, certainly such a medicine would discover great and certain effects and virtues, infinitely superior to any chymical preparation of it.

The matter of fire, by penetrating through the surface of a solid or fluid body, acts internally with an expansive force to loosen and drive asunder its constituent particles, and the air acts externally and overcomes this motion of the fire, when the body grows cool and begins to concrete, and the heat within is counteracted by the cold without.

Air being the cement and principle that unites and keeps together the parts of all body, if it should at any time be lessened so as to bring it upon an equilibrium with the internal pressure or fire contained in all bodies, then all nature would turn to a state of fluidity, and bring on another deluge. If this air or cementing principle was to be still farther diminished to give the internal expansive fire a greater advantage, it would loosen and drive asunder the constituent parts of matter, and set the world on fire, which the scriptures tell us, will be the fate of the world at last. The elements shall melt with fervent heat or fire. All the other elements shall be overcome and destroyed by that one powerful element fire, which we may call nature's dissolver. In the same manner we may account for the death of animals.

All the elasticity which we discover in any body is borrowed from the impulse of fire. It makes water to rise in fume, spirits and mercury to do the same.

This

This power in nature can insinuate and drive moisture both into vessels and the interstices of bodies, so as to overcome an inconceivable resistance to its progress. By its action the hardest twisted ropes may be shortened with such power as to move immense weights fastened to them. The roots of trees have been known to open fissures in very massy rocks which resisted their growth and distension. It is the cause of vegetation; by it the sap ascends in the plant, the seed germinates, and the blood circulates. Sap does not ascend in vegetables upon the same principle that water rises in a capillary tube; for in a capillary tube, it makes no difference whether there is air upon the surface of the water into which it is immersed, or whether the air is exhausted. The experiment succeeds equally in an exhausted receiver, and the same ought to succeed in a vegetable, if there were not some material difference: but air is found so necessary for vegetation, that no plant can take up its nourishment, nor will seed ever germinate so long as the air is absent. Again, there is no season of the year in which a glass pipe will raise water to a greater height than at another, the effect being just the same in the depth of winter as in the heat of summer. But the rays of the sun, or the heat of an artificial fire, is so absolutely requisite to the growth of herbs, that in their season for taking in the sap, in their stature, in their qualities, they are wholly influenced by the sun's heat all over the world. The plants which are lowest in their stature spring up first; they are succeeded by others of a larger size, till at last the under shrubs and trees put forth in their order; and when the sun is at his greatest exaltation in summer, the whole vegetable creation is in its greatest glory and beauty. Then, as the sun declines, this vegetative motion languishes, and the

the order they observed in putting forth their leaves, flowers and fruit, is now inverted in their decay. They drop their leaves one after another, and so continue, till the sun, at his return, puts new life and moisture into their veins. If in the morning, says Dr. Hales, while the sap was in a rising state, there was a cold wind, with a mixture of sunshine and clouds, when the sun was clouded the sap would immediately visibly subside, at the rate of an inch in a minute for several inches, if the sun continued so long clouded; but as soon as the sun's beams broke out again, the sap would immediately return to its then rising state, just as any liquor in a thermometer rises and falls with the alterations of heat and cold. But what is all this to the ascent of water in a capillary tube? To apply that experiment to account for vegetation, is the greatest absurdity, because they agree in nothing. If we leave out the true cause, the elementary fire, and attempt to explain vegetation with no better materials than the imaginary attraction of a glass pipe, we shall bring upon ourselves new and insuperable difficulties, and remove none of the old. Thus it will always happen when we connect together things foreign to one another, and account for a hundred experiments by one that hath not been accounted for.

If nature then be provided by its Author with an element of such power and activity as enables it to overcome the strongest cohesions, it cannot be destitute of an agent powerful enough to cause them; and if we attentively consider nature, we shall be at no loss to discover this agent. The pressure and activity of the air is allowed by all philosophers. Take two concave brass hemispheres, apply them to each other, exhaust the air from within, and the hemispheres will be so firmly fixed together,

gether, that no force you can apply will be sufficient to separate them. This is entirely owing to the pressure of the air. From the surfaces of the brass hemispheres we may make a natural transition to the brass itself. Let this brass be thrown into a furnace, it soon grows red; and as the heat increases, it becomes in a manner transparent, the matter of the fire penetrates into the body of the metal, and when the medium within is nearly in the same condition with the medium without, the brass runs, and there is an end of its cohesion. An effect which is thus made to cease in a mechanical way, may be produced in the same way; and if the entrance of fire dissolves and separates the parts of metal, the exterior pressure of the air was the true cause of cohesion. When the fire dissolves a mass of metal, an extremely fine and subtile fluid passes freely through the body of it; but as it cools, this medium within having no fresh supply, evaporates in part, and the remainder growing continually weaker, yields at last to the superficial pressure of the air, which drives the parts together, and keeps them compacted till it is again counteracted by fire. If there be an equal pressure externally and internally, the body will remain in a dissolved state.

This æther or air, which is the bond of union and preserver of nature from dissolution, is not a privation of heat, but an elementary body different from common air, and of sufficient power in its operations to execute the office assigned to it. Common air is no other than a menstruum, saturated in a high degree with heterogeneous particles of a grosser substance, and more especially with the particles of water. From a very common experiment with the air-pump, water appears to be at all times suspended in the element of air. After a stroke or

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two of the pump, the remaining air, within a receiver, being rendered lighter, never fails to let fall a cloud of vapours. That this elementary principle is distinct from common air, a hundred times more powerful, and of such surprising force, may be proved by a variety of experiments. For example; take a vessel of water, extract the air entirely out of it, then shut it up so as to be air-proof, put it into a freezing mixture, and you will find the water frozen, and increased in its bulk; and if you do not allow for this increased bulk, the water will burst the vessel, though made of the strongest metal. But cold does not expand bodies, but contract them; therefore the increased bulk in the water arose from the inclosed bubbles of elementary air.

The effects of hot, cold, and moist air, as daily exhibited to our senses in the customary changes of the weather, are sufficient to justify me in what I have deduced from them. When the weather grows warm, the power of cohesion grows weaker; when the weather becomes cold, this power is increased, and the hardest metals, in common with all other bodies, are proportionably altered in their dimensions. Extreme heat will dissolve them, extreme cold will harden and render them so brittle, that large bars of iron may be easily snapped in sunder, after being exposed all night to an open air in a severe frost. If the degree of density in a cohering body vary with the degrees of heat and cold, where should we seek but in the element of fire and air for the true and physical cause of cohesion and expansion, or, to speak in the language of philosophers, attraction and repulsion. When we descend to the precise mode of their operation, it is hardly to be expected that our ideas can have a mathematical exactness.

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Let us now briefly apply what has been said, in order to account for diseases. In all diseases the equilibrium between the external air and internal fire is by some means more or less interrupted, the juices in consequence are not properly assimilated, nor the circulation regular and uniform, and the fire is more or less predominant in proportion to the degree of danger. A preternatural heat is the indication of most diseases, and a windy flatulency is for the most part predominant and very troublesome. Dropical people, though their skin feels cold, are burnt up with an internal fever, which is known from their thirst. Nervous diseases arise from a certain degree of heat, which occasions relaxation; if that heat is increased, putrid fevers, and all the tribe of putrid diseases, come on. Hot putrid air, the foriatic wind, &c. greatly weaken and relax the body: lightning kills, and the body is thereby reduced to a soft putrid state. Dead people are remarkably cold, and those that have been some time in a state of submersion are excessively cold, and heat is the medicine administered for their recovery; for in both cases the external air has extinguished, or greatly overbalanced the expanding fire, and the equilibrium is interrupted, or entirely destroyed. When the common air abounds less with the elementary principle, it loses part of its elastic virtue, which makes the quicksilver sink in the barometer upon the approach of bad weather, and is the reason why we find the common air heavy, and the less it supports and keeps up our spirits. And if it loses its elastic force without, it loses it also within us, whereby our natural strength is diminished, the circulation is languid, the body heavy and dull, the spirits low and oppressed, the stomach does not regularly do its office, the patient complains of head-ach,

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peevishness,

peevishness, and a great variety of other gloomy and disagreeable sensations too well known, particularly to those who labour under nervous diseases.

CHAP. II.

Of the Animal Economy, and Nature of the Circulation. Of Animation, wherein it consists.

THE stomach is employed in receiving the stock of fresh supplies, which the repairs of our constitution and the uninterrupted circulation of the fluids require. For the animal body cannot exist long independent of certain ingesta, taken into the stomach, which therefore become necessary to preserve life. In the stomach then the primum mobile or primary motion of the fluids after birth begins. The state of the foetus in utero matris we shall afterwards take occasion to mention. But the contraction of the heart and pulsation of the arteries cannot reach the stomach, influence the chyle in the first passages, and propel it into the lacteal vessels, which are a system of veins, very small in their beginning, and as they advance, they unite and enlarge, till they form one great trunk or vein, which pours the blood into the heart. In this progressive motion to the heart the chyle derives no benefit from the action of the heart, nor does it receive any assistance from the contraction of the arteries, as it has no communication with them, therefore there must be some moving quality or power in the chyle or digested food to carry it to the heart; and as in a healthy person the repairs of nourishment from
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the food in the stomach must be equal to the waste of the body, so the power with which these repairs are carried to the heart and thrown into the mass of blood, must be equal to the circulating powers concerned in all the secretions and excretions of the body. Therefore the spontaneous motion or moving quality in the chyle, if continued and unimpeded, would be sufficient to carry on the circulation through the whole body, independent of the mere muscular force of the heart, provided always that the vessels are emptied as fast at one end as they are filled at another; for no fluid can enter a vessel already full. This is the case in the human body. The vessels indeed in the human body ought to be, and in a state of health are full from one end to the other; yet there is a constant waste at one extremity of the vessels, in order to make room for what is imbibed by the opposite extremities. Therefore the constant waste and inanition in the animal frame by perspiration, urine, stool, &c. forms a vacuum, or rather a diminution of matter at the extreme points of the vessels; as there is not in nature a real vacuum, this relative one enables the vessels to receive frequent supplies of food, prepared in the stomach, which by its own inherent properties continues its progressive motion till it arrives at the opposite extremities, and is expelled through some outlet to make room for more. If these outlets are stopped up, or much obstructed, the constitution is more or less out of order, the person labours under a plethora, the circulation is impeded, and its nifus inverted; the fluids, retained longer in the body than by the laws of the animal œconomy they ought, acquire too great a putridity, the equilibrium between the primary agents of nature is interrupted and imperfectly preserved, and the whole body is

weakened and relaxed, and its sensibility increased. Hence we see that the depletion of the body by perspiration, &c. is absolutely necessary for the preservation of health and life.

Again, the skin is full of absorbent vessels, which receive the volatile fluid or air with the more attenuated and active particles constantly floating in it, and convey them into the habit by the same method the absorbent lymphatics carry the chyle from the stomach to the heart, and onwards to the extreme vessels, which open their mouths upon the skin. The cutaneous absorbents receive as little assistance from the heart in their progressive motion as the absorbent vessels, which carry the chyle from the stomach into the habit. Therefore circulation may be carried on without the assistance of the heart.

The same power which put the chyle in motion from the stomach, is continued through the veins and arteries, and diffused over all the vascular system, and without receiving any assistance from the action of the heart, carries on the circulation through the liver, and manages, in a great measure, the course of the blood in the foetus without the heart. For the greater part of the blood, which in persons after birth is discharged into the heart by the vena cava, in unborn infants, is conveyed by a canal, appointed for that purpose, immediately into the aorta, without passing through the heart at all. We should not therefore conclude that the action of the heart is absolutely necessary for the blood's motion.

Though many of the arteries pass into continuous veins, yet the greater number perhaps terminate in the imbibing orifices of a species of vessels called lymphatics, which are also absorbents, and receive by extravasation or transudation the lymph from the arteries, as the first
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species of absorbents receive the chyle from the stomach. We cannot suppose the circulation of the lymph in the lymphatic vessels receives any material assistance from the heart or arteries; therefore we are forced to conclude, that the circulation is carried on by the expanding force of the fluid itself. If the lymph be extravasated in too great proportion to be absorbed by the lymphatics, it must remain in a state of stagnation in the cavities of the body, where it loses that homologous quality, which was only preserved by the continued progressive motion in circulation, and becomes putrid, the most volatile aerial particles having received a degree of depravity by stagnation, and having time to disengage themselves of the grosser parts; and the antagonistic force and action of the elementary air over the fire being weakened, by its assistance they fly off, and in their passage irritate the nerves and nervous expansions of the membranous parts, which cover and enclose the muscles and vessels of the body. Hence dropsies of every kind. This putrid steam is the principal agent in producing the tympany or windy dropfy; the remaining part of the lymph having lost its more volatile parts, which kept it in motion, dissolves and separates into heavy, grumous, and ill-conditioned matter, which irritate, break and tear the lymphatics, throw a damp and languor upon the whole circulating mass of fluids, which at last partake of the same qualities, and occasion ulcers, gangrenes, bleedings at the nose, an exophthalmos, or a kind of rupture or protuberance at the navel, a sphacelus, and at last death.

As the circulation of the blood does not absolutely depend upon the action of the heart, neither does it thereby receive any great increase of motion. For the momentum of the blood in the *vena cava*, before it reaches

the heart, is nearly equal to the motion it has in the *aorta* after leaving it. The heart too transmits no blood into the arteries, except what it receives from the veins, consequently cannot emit it faster, or with much greater momentum than it receives it.

If the contraction of the heart and pulsation of the arteries are either insufficient or unemployed to assimilate the food, and carry on the circulation, we must look for some other agent in the animal frame powerful and active enough to accomplish these ends. Whatever changes and assimilates the food to the nature of the parts at which it arrives, must be the same that gives it a power of progressive motion, as well where the action of the part cannot be traced, as where it cannot possibly reach; and what moves by that principle, must move spontaneously, that is, without any occasion for the application or assistance of that power to which we apply the idea of downright mechanical force.

If we attend to what has been already said of the primary mechanical agents in nature, we cannot be at a loss to find out an active power sufficiently qualified to perform all the operations in the animal œconomy.

Our food is a heterogeneous mass of matter, possessing the principles and qualities inherent in all matter, *fire* and *air*. Our food then has the first requisite for self-motion, and is endowed with such an evaporable degree of heat or fire, that disposes it to pass towards a colder place or state, or to fly off in vapour whenever it can get vent. This quality the blood is possessed of in a very remarkable degree; it discovers more vapour or volatile effluvia in it than any liquor of the same degree of tenacious viscosity, with an equal degree of heat. The second requisite is, such a mixture and composition of particles
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in the fluid, as disposes it to that particular kind of intestine motion of the heterogeneous parts, called fermentation, by which the liquor is by some means agitated, grows full of air, expands itself, runs into new combinations, and generates new principles. This intestine motion or fermentation arises from an effort of the confined air and fire, aided by the heat of the stomach, and different configurations of the parts of the food, to disengage themselves of the earthy or more inactive matter with which they are incumbered; and by opening, triturating, and dividing this indolent matter, they partly disengage themselves of their impediment, expand, and endeavour to fly off, which they certainly would do with a violent motion, if they could perfectly disengage themselves of all inactive matter. This struggle, in some cases, is at times so brisk, as to produce smoky and visible fire. In wine which all the winter had only a small motion of its particles, when the rays of the sun become more powerful, and give an additional supply of heat to the fire inclosed in the body of the wine, then we see the motion of the subtile element become stronger and stronger; and the vessel containing the wine would burst, if it had no vent. By fermentation spirituous liquors are generated out of saccharine ones; acids out of spirituous liquors, and out of animal fluids, allowed to run into the same kind of intestine motion, are generated foetid volatile spirits. The fermentation of dough, and other matters of the same nature, proceeds from the same cause. The primary agents in nature being disturbed in their reciprocal action and influence upon each other, by trituration and the application of any fermenting body, rarify and dissolve as much as they can whatever resists their motion, and occasion the matter to swell and occupy

greater space than before. Leaven increases the fermentation of dough in the same manner as the rays of the sun promote a fermentation in wine. A great fermentation of vegetable matters long continued produces vinegar, which, when entirely divested of all its aerial and fiery particles, becomes insipid. A violent fermentation or motion of animal substances ends in putrefaction. These things are not speculation and theory, but obvious facts well known to every body; and though it is impossible to discern the figures and motions of the fluids in a state of fermentation, yet we can observe the effects of that great instrument of nature, whereby she changes liquors from one state to another, and makes the preternatural state slimy, windy, acid, bitter, acrid or putrid.

That the concoction or digestion of food in the stomach is a true fermentation is evident from this simple experiment. Take a mass of matter of the same kind and consistence with our food, inclose it in a vessel, with a degree of heat equal to the stomach, and it will spontaneously run into fermentation. How is it possible then to suppose that such a mixture does not ferment in the body? Certainly it does, and by its fermentation the food is converted into chyle, by means of the primary material agents, which, as I already proved, are the fountain of animal and vegetable life and motion, and produce all the revolutions in the planetary system.

Our food is composed of a vegetable and animal kind, which gives a double tendency to the fermentable motion to exist in the blood. The vegetable part of our chyle or concocted food is, by its intestine progress, always assimilating and advancing into the animal state or nature, and the animalized parts of our fluids are, by the same progressive motion, so disposed to that kind of
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fermentation, which terminates in putrefaction, that nothing could preserve them from it, but by directing their nifus or effort from that tendency into a progressive motion. It is certainly one of the marks of infinite wisdom discoverable in the regulation of the animal œconomy, that the innate disposition of our fluids, arising from their commixture and fermentive motion, to degenerate from their animal state, should continue so long to be exactly exerted, as to determine them by its nifus into progressive motion, and at the same time this progressive motion should prove that extremely critical check, which restrains the nifus effort or tendency to putrefaction in animal fluids from advancing any farther towards a pernicious dissolution than is consistent with and necessary to preserve the animal œconomy. Thence we see the dangerous consequence of inducing upon the animal fluids an unnatural resolution of their continuity by obstructed perspiration, intemperance, putrid air, and many other causes, which we shall, in a succeeding part of this book, enumerate.

Another active principle in our food, disposing it to self-motion, is its tendency, in common with all other liquors or fluid masses, to degenerate, and in that state to extricate very volatile elastic effluvia of particular kinds which remarkably abound in the blood. Liquors in strong fermentation detach a great quantity of volatile steam, which would burst the vessels if it did not find vent. When liquors are put into bottles and corked before their fermentation is finished, we all know with what violence they will not only discharge the corks, which confine them, but likewise throw themselves out in form of a volatile self-moving foam or froth. The same kind of windy vapor more or less disturbs the animal

mal œconomy in diseases, for we see that a redundancy of wind is a general symptom in all diseases. But when the liquors are properly fermented and depurated, that volatile effluvia enlivens the liquor and gives it spirit. Just so it is in the human body; when the fermentation is properly begun in the stomach, and passes regularly through the whole process of fermentative circulation, and the fluids are duly secreted and depurated, they are then a homogenous mass endowed with a regular self-moving power. If too much of this elastic effluvia be detached from the common mass of fluids from a weakness and relaxation of the stomach, the quantity or quality of the food, or from any cause which occasions indigestion, from the natural elastic effluvia of the blood, being retained in the body and stopt in its passage by obstruction, or from a relaxed state of the solids in general; which permit too much of this elastic effluvia to be detached from the common mass of fluids, the consequence is, this pent up wind or vapor, which nature intended for our good, and in a healthy state always fulfilled the design by assisting the progressive motion of the fluids, and enabling them to reach the exhaling arteries of the cutaneous vessels for expulsion, now tears and distresses the patient, occasions acute pains, spasmodic contractions of particular parts, irregular secretion and excretion, inanition, an irregular circulation of the nervous fluid, which brings on lowness of spirits, head-achs, promotes putrefaction, and in short disorders the whole animal œconomy.

All liquors, which from their attenuation, warmth and divided state, are evaporable, have a tendency to fly off into a cooler and less confined region, and to recede whenever they can from that degree of warmth which so volatilizes

volatilizes them, and wherever vents are opened thither the whole nifus of their motion is intended. This course they take wherever the air has access to them, as upon the surface of the body, the lungs, &c. The first series of passages prepared for the progressive course of the blood, disposed to motion as already described, are the pores of the skin, which are the extremities or termination of arteries, the excretories of the glands immediately under the skin, commonly called the sebaceous glands, and the vents through the intertexture and agglutination of the vessels of the skin, which gives passage to such portions of the extravasated effluvia as approach these orifices, and form what we call perspiration. And upon the same principle, the particles next in succession to those that have escaped, take their place, and those immediately behind them occupy theirs; so that the same principle has its influence backward to the very rise and source, not of the arterial circulation only, but to the remotest chylous absorbents in the stomach. Besides what passes by perspiration, a great deal is thrown off by the lungs in expiration. Thus the body is depurated and prevented from falling into a state of entire dissolution, room is made for fresh supplies of food, taken in by the stomach, and the constant circulation of blood is kept up. Hence we see how absolutely necessary a regular perspiration and expiration are for the preservation of health, what danger arises from colds and obstructed perspiration, how natural it is for a person to lose his appetite when ill, and how improper and dangerous the practice is of stuffing a sick person with food.

By the inherent qualities and power of matter vegetable circulation is carried on, which may be called vegetable life. This power in common with vegetables

we have constantly exerting itself in promoting animal circulation. But though we have this power in a degree as much more active in us as our fluids are warmer and more evaporable than those of vegetables, yet more is required to accomplish the motions and secretions of the animal fluids. Though there is not, strictly speaking, an absolute vacuum in nature, yet there is a relative one, sufficient to answer all the purposes of absolute ones, by not only giving free access to the motion of grosser and more consistent bodies in them, but by really giving the motion of all such bodies a direction and tendency towards them, as the propelling or expanding fluid always tends to the place where it meets with least resistance. Wherever then there is a secretory or excretory duct of a gland, there, or in the course of the liquor secreted from that gland, there is to be found such a vacuum as necessarily influences the course of the humors arriving at it, as a cupping-glass swells the part or draws the blood into it where it is applied.

The glands are appendages to the sanguineous and lymphatic system and consist of a congeries of vessels, both nervous, venal and arterial, and ramify into a variety of ways. They serve not only as conductors to the circulating fluids by forming relative vacua, as they partly terminate into a bladder or reservoir to store up the secreted fluids for the use and convenience of the animal œconomy, as the heart does the blood, &c. but they rarify and attenuate the fluids, which become more volatile in their passage through these ducts. The variety and wonderful manner in which they ramify and divide, and the capacity of their cavities impress a proportional change on the secreted fluid, which receives its distinct quality and consistence from the particular size, configuration

ration and effect of the organ or gland through which it is secreted. The lymphatic glands in particular, which are not free of nerves, form divisions so extremely minute and numerous, that they appear to be composed of nothing else: they divide, and, after many convolutions, unite again into one or more trunks. This diversity of ramification has its effect in determining the nature of our secretions; for the vessels of each gland have their own particular effect. If the size and construction were the same, and the momentum of the fluids the same, they would all certainly perform the same functions, and there would be no diversity in the secreted fluid. Dr. Cullen, speaking of the secretions, says, Till we can discover these more clearly, we may in the mean time observe, that the action of the vessels of the secretory organ has a considerable share in determining the quantity and specific quality of the secreted fluids. Indeed the capacity of the secreting orifices, with the velocity of the blood's motion, no doubt determines the quantity, and for the most part, particularly in a state of health, the quality of the fluids, which are considered as separations from the general mass. It is observed, that the matter of perspiration is increased by exercise, and that the kidneys, in a spasmodic state of their vessels, separate a limpid fluid with the admixture of a mucilage, which is supposed to be generated by a small degree of increased putrefaction taking place in the blood. The glands then do not merely secrete the approaching fluid from one system of vessels, and transmit it to another, but each gland has a power inherent in itself to act upon the fluids, which it secretes, agreeable to the nature, office, and intention of that particular organ. As the glands are also a congeries of nerves, they, no doubt, have some operative power upon the nervous fluid, and

and upon the organical structure of the nervous glands, the different degrees of sensibility in different persons, and even in the same person may depend. Some glands, as the nervous ganglions, &c. may perhaps be considered as belonging to the nerves entirely, and their uses solely confined to that system. As the nerves, in their passage from the brain, join, and form roundish masses or ganglions, from whence they proceed to the different parts; these ganglions serve, perhaps, as relative vacuums for the circulation of the nervous fluid.

That the fluids receive their nature, qualities and consistence, from the different stages of fermentation, conducted and modified by the circulation, and the different organization of the vessels through which they pass, (for all conspire in the discharge of their peculiar and essentially necessary offices to accomplish the same end) may be proved from the vegetable system. The mild and acrid juices of vegetables receive their nourishment from the same fluid. Rain-water, in its passage through a vine or an apricot tree, is converted into a sweet liquor; in its passage through the lemon and barberry trees, is changed into a sharp corrosive liquor; and the juice of two different trees, growing in the same garden-pot, and nourished with the same water, will retain their proper and distinct natures: this change is not effected by fermentation only, but depends upon the vegetative power of fermentation, and the peculiar construction and organization of each distinct species of vegetables. Withdraw either of the causes, and the effect will cease. How ridiculous then is it to suppose that the water is an inactive fluid in the vegetable system, or that the blood and fluids in the human body are indolent and passive, serving no other purpose than to distend the solids, from whose action they receive their
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different properties and appearances. It is as absurd to suppose, that an effect produced by the joint action of the fluids in fermentation, and the different organization and act of the solids, should arise from the agency of one of these causes separately, as that a person should walk as well upon one leg as two without any other assistance. If the fluids serve only to distend the vessels, then water, or the blood of any beast, which would certainly answer that purpose, might support animal life as well as the natural juices; but if water was to circulate through the vessels, neither blood nor a true natural heat would arise by ten thousand circulations. If we advert, that life is but another name for self-activity, and consequently, that the very essence of life lies in that activity, it is impossible but that the fluids must enjoy activity as a principle of their constitution, and not yield to motion by mechanical impulses only, like inert, passive masses. The solids and fluids are both possessed of life, and differ only in consistence and extent of continuity. The fluids make up the solids, and the solids may again be reduced to a fluid state. They are jointly concerned in preserving the vital principle, supporting and maintaining the animal œconomy, and are jointly concerned in producing every disease. The foetus in utero matris exists perhaps as a gland or glandular substance, and receives its nourishment from the mother by suction and absorption. Of all the glands in the human body, the heart is the chief, and performs many important purposes in the animal œconomy. The heart is a receptacle where all the heterogeneous parts of the blood are so blended and mixed, as to prevent particles of the same nature and qualities from forming combinations and adhering together, and to render the whole mass fit for the various changes and secretions it is intended

intended to undergo in its course. The arteries resolve the blood into the various animal fluids and secretions. The veins combine and elaborate the fluids into the form of red blood. They complete the work begun in the stomach, and render all the fluids perfectly animal; and so very volatile, that those which have passed several times through the veins must be highly volatilized and exhaled, ready to dissolve, and to affect the rest of the blood with the same disposition, and certainly without some check would soon terminate in putrefaction. The blood that circulates through the liver is a degree more animalized and volatile than the rest of the blood, having undergone a second course of venal and arterial circulation. If this blood was to mix with the rest of the mass, and nothing interpose to prevent it, the whole would very quickly run into a state of putrefaction; but nature is relieved from this dangerous and alarming tendency taking place, which would at once destroy the whole machine, by a proper and sufficient remedy to counteract the evil. This very blood, ready for dissolution, is carried to the lungs, where it receives a portion of fresh common air in exchange for an equivalent portion of the most volatile effluvia of the blood, exhaled from the lungs at every expiration. The blood, by the assistance of the lungs, has not only parted with some of its most volatile parts, which had made the greatest progress to a state of putrefaction, but the remainder is cooled and refreshed by a supply of fresh air. All this, however, would not be sufficient to prevent the calamity taking place, if a supply of fresh materials was not brought from the stomach. The stock of chyle is carried from the stomach to the heart, where the whole is mixed together.

There is also, as I already said, a great tendency in the blood to form a large quantity of smoking volatile effluvia or vapour, which would separate from the other parts of the fluids, form an elastic detached mass, and stop the circulation of the blood; and being prevented in its endeavours to expand itself by the sides of the vessels, would pass impetuously and irregularly through them, and thereby disorder the circulation. This evil is also remedied by the action of the heart; for the diastole, or dilating of the heart, makes room for the expansion of the effluvia in the blood, and the volatile detached particles, as far as they come within its reach, rush forward to this relative temporary vacuum. The heart being filled with light volatilized blood from the veins, common air from the lungs, fresh chyle from the stomach, and a quantity of detached effluvia, acts upon this compound mass, and by its contraction jumbles and shakes the whole so intimately together, that the formerly detached effluvia is again mixed with every portion of the blood, which is now a homogeneous fluid, qualified to undergo all the various changes and secretions for which it is intended in its course, under the influence and direction of the nerves. And it is one part of the office of the arteries to continue the same operation which the fluids had just before undergone in the heart, till they are most intimately and perfectly mixed, and become fit to be resolved into the various secretions.

The vacuum produced by the contractions of the heart and its evacuations, or alternate states of emptiness, are absolutely necessary to the whole system of the venous circulation. When the veins are full, and the auricles or hollows of the heart, into which the veins empty themselves, full also, where is the collected stream of the

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veins

veins to go? The auricle contracts and empties itself, which instantly produces a vacuum, upon which the turgid veins pour their contents into the auricle to fill up the vacuum again, and all behind moving in the veinous direction, advances so much forward, and to this non-resisting vacuum there is a mechanical nifus from the remotest filament of a vein over all the body. Not only the continuous veins, but every other humid interstice and extravasated effluvia within the surface of the body, are sucked, attracted or impelled, as they offer, into the direction of the veinous streams.

The self-moving property in the blood, assisted and promoted by the relative vacuums of the glandular ducts and heart, which direct and regulate the nifus or tendency of its course, would not be sufficient to sustain and keep in play the motions of the whole animal system, without the precedency and uninterrupted influence of a power still superior, I mean the nerves or nervous fluid. The systole or contracting of the heart answers to the diastole or dilating of the brain; therefore the alternate pulsations of the heart necessarily imply a correspondent alteration of the effluxes or powers of the nervous system, and of their origin, the brain. The intermissions of muscular action in the heart must proceed from an intermission in the action of the brain and nerves upon it, which determine its alternate action and inaction; and as no effect can be greater than its cause, action must always be equal to re-action, consequently the alternate efforts of the brain on the nerves, that agitate the heart, must have as great an effect on the brain itself and its effluxes as it has secondarily on the heart itself, and the fluids, whose course it regulates. The heart's action occasions the secretion of the nervous fluid in the brain, and,

and, by producing an orgasmus or active tension through the whole series of solids, (for this alternate action or two-fold motion is, in all nature, not singular to the heart, but to each of the minutest fibres, even to the fluids) the influx or tendency of the efflux of the nervous fluid is directed by a thrilling or oscillatory motion over every solid and fluid particle of the body, which thereby becomes one animated whole.

Who can survey the wonderful œconomy of the human frame without astonishment? Each part is so interwoven and connected with the other, and each so necessary every where, that one cannot say to another, I have no need of you. All conspire to form that miraculous whole called animal life. It is very erroneous to say that life or animation consists in one part of the human œconomy; for as the whole is made up of all its parts, so life is but another name for self-activity, begun in the stomach, and finished in the nerves; the very essence of life lies in that activity, and is the result of that process. Every part supports and assists another, and hanging together, is so connected to form that astonishing whole the human body, organized and modulated to act and be acted upon by something immaterial. In short, the whole universe is in constant action, and has life.

Having now surveyed the animal œconomy from the digestion of the food in the stomach, through all its progressive course to its final resolution and conversion into the nervous fluid in the brain; and having, at the same time, attentively examined the manner in which these various and important changes are produced by the active principles of our constitution; I shall now observe the same order and method in the arrangement of diseases, which are no other than a vitiated state of those powers,

or some oppressive load or obstruction upon one or other of them, manifesting itself by proper symptoms. The composition and structure of the human body is made up of so many parts, each hanging to the other by so intimate and necessary a connection, and the acting powers in our frame are so interwoven into one piece, and each necessary every where, that no one can be said to be affected by itself. Yet, as every disease must have a beginning somewhere, some one part of the system must be first more immediately and particularly affected than another, therefore we may, with some propriety, observe a method in classing diseases.

I shall conclude this chapter with a few general remarks, and then proceed to particulars.

Diseases arise from external or internal causes. The external causes producing diseases are cold, moist, and hot air, putrid effluvia, infectious matter applied to the skin, greasy applications to the skin, external injuries from blows, violent exercise, &c. Internal causes of diseases arise from whatever alters the properties of our fluids, and the nature and capacity of the solids, so as to produce an inability in the active moving powers of the animal frame to perform the different functions necessary for the support of life and preservation of health. Though many diseases are infectious, few are hereditary. Most diseases arising from internal causes are the produce of irregularity, especially in men: women indeed are liable, from the organism of their bodies, to some disorders. The food we eat nourishes the body, supports life, gives rise to diseases, and is the parent of a very fruitful offspring. Diseases are divided into acute and chronical. When the disease is violent, and comes soon to a termination, we call it acute. Diseases that are slow and languid in their
advances,

advances, are generally very long before they go off, and are therefore called chronical.

The symptoms attending most diseases are a restlessness, with more or less pain, an unnatural heat, a lassitude and weariness, an irregular state of the spirits, loss of appetite, thirst and dryness of the tongue and mouth, wind, a partial interruption and irregularity of the secretions and excretions. Every disease has diurnal exacerbations, which happen between eleven o'clock at night and five in the morning.

There is a certain periodical plethora in all nature. The sea ebbs and flows; the sex are relieved by the eruption of the menses; humours increase and grow plentiful in the beginning of every month; in lunacy these periodical changes are very perceptible: they happen indeed in all diseases, and very much exaggerate the symptoms; but not being so perceptible, were not attended to by physicians. Some people are subject to periodical eruptions upon the skin, and are at other times quite free from any thing of the kind. Most sores and runnings have a greater discharge at one time than another. The periodical changes in the atmosphere, which produce proportional changes in our constitution, happen once in twenty-four hours and monthly. Action and reaction are the mode by which the whole frame of the universe is supported. The sun is the principle of motion to our planetary system; he pervades all nature, and diffuses his influence to its most intimate recesses, elaborating out of one whole, according to its various circumstances and assortments, an infinite variety of properties and forms: while the moon, by a special regulation and flexion of its influence, disposes that great mass of moving matter, which are the instruments and agents of its energy, and

the subject of all its operations and productions into those tides of reciprocal ebbing and flowing, which is, according to the constitution of things, so necessary for their proper arrangement and disposition to qualify them to partake of the energetic influence of the sun.

To conclude. Whoever takes a view of the vast extent of things, and considers how limited and confined the faculties of man are, will easily discover how small a share of knowledge the wisest can attain, and therefore will not entertain too high notions of the extent of his own knowledge. How often do we see what some people call accident bring to light discoveries of the greatest importance; and, to mortify human vanity, the most beneficial inventions have oftener fallen to the lot of the ignorant and illiterate than to the learned and scientific. Physic is an obtruse, complex and extensive science, where the minute structure of the human frame, the actions and functions of its several parts, the causes and nature of diseases, the properties and effects of matter, both as food and medicine, and many other things relative to the human body, many of them but imperfectly understood, are the general grounds to reason upon. Therefore in such an extensive science great care is necessary in the application of our reason.

To arrive at real knowledge in the nature and cure of diseases, we must take an extensive view of nature in its different operations, trace diseases to their origin, follow them through their various stages, submit to be nature's vicegerents, alter the medicines as she directs, attend to the visible symptoms of diseases and the operation of medicines, and from thence learn to form a true judgment of the complaint and method of cure, observe with great care and judgment all the motions and changes of nature,
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be ready when she invites to give her air, be constantly waiting to obey her orders with expedition when she hangs out the signal of distress, and points out the way she would be served : but never officiously obstruct her in her wise and kind endeavours to serve us, for she will, and ought to have her own way, and will not be rudely forced into obedience. There is not a surer and safer way of coming at the true knowledge of a disease, than by comparing it with others, for they best explain one another, as the symptoms serve to elucidate each other. Diseases bear such an analogy to one another, that we cannot investigate the nature of one without the nature of some other being made manifest thereby, for they differ very little from one another, and are very simple in their nature. The proximate causes are various, but the immediate causes are few. Each disease is distinguished by some particular symptoms ; yet a person well acquainted with the animal œconomy, from a knowledge of the cause and symptoms of one disease, will be at no loss to account for the particular symptoms of every other. It is also very, nay, absolutely necessary, to attend to the situation of the country and nature of the climate. That diseases are much influenced by the vicissitudes of the weather, and state of the atmosphere, delicate constitutions, and particularly nervous people, are convinced by experience. The same effects are produced upon the strongest constitutions, though they don't perceive, or attend to it, except it produces some chronical complaint. For example, the rheumatism, scrophula, and other eruptions commonly called scorbutic, are peculiarly endemical in a damp fenny country or county, and few people are entirely free from them. Particular complaints are as naturally to be expected in certain situations

as particular plants in certain soils ; therefore there is no better way of judging of a disorder, when it first appears, than by an exact survey of all the concomitant ones. An historical account of the patient's constitution, and of the complaints to which it has been most subjected for a course of years, leads very much to the knowledge of the present illness. Upon such certain data, together with observations from dissections, we may safely reason, for it is the abuse, not the true application of reasoning, that is reprehensible. But let us not attempt to account for or explain things where we have not sufficient data to go upon, or where the matter is in its own nature obscure and intricate, lest we err ourselves, and mislead others ; it is better to stop where we have not sufficient grounds to go upon, and wait patiently till future enquiries and discoveries throw more light upon the subject. By accurate observation and plain reasoning by analogy, knowledge is improved ; but reasoning from fallacious, imaginary, or dubious principles, will certainly betray us into error and confusion.

C H A P. III.

The general Causes of Disease. The Nature, Qualities, and Choice of Food. The Danger of Intemperance in Eating and Drinking, and Advantage of Air, Exercise, and Sleep. Directions how to use the Non-naturals for the Preservation of Health.

THOUGH health is the greatest blessing, and the most valuable possession upon earth, yet we see people in general very lavish and regardless of it, wantonly

only sporting it away, hunting after ways to gratify a sensual appetite, incompatible with the laws of nature; and, like unfortunate gamesters, never repenting till it is too late. From such a conduct one would be apt to think that it was unnatural to man to covet length of days, that intemperance did not bring innumerable diseases and death, that health was not the greatest worldly blessing to which we owe every comfort in life, if fatal experience did not convince the unhappy victim, that folly directed his conduct, and dreadful infirmities the fruit of his labour. But notwithstanding this, it is a melancholy consideration to think how few take warning from the example of others, and yet how easy it is to preserve health. If people were as assiduous to keep as they are to destroy their health, the physician might lay aside his pen, and the apothecary shut up his shop, for intemperance gives employment to both. The lower animals, says Dr. Price, except such as have been taken under human management, seem in general to enjoy the full period of existence allotted them, and to die chiefly of old age; and were any observations to be made among savages, perhaps the same would be found to be true of them. Death is an evil to which the order of Providence has subjected every inhabitant of this earth, but to man it has been rendered unspeakably more an evil than it was designed to be. The greatest part of that black catalogue of diseases, which ravage human life, is the offspring of the tenderness, the luxury and the corruptions introduced by the vices and false refinements of civil society. That delicacy which is injured by every breath of air, and that rottenness of constitution, the effect of intemperance and debauchery, were never intended by the Author of nature, and it is impossible they should not lay the foundation

dation of numberless sufferings, and terminate in pre-
 mature and miserable deaths. Let us then value more the
 simplicity and innocence of a life agreeable to nature,
 and learn to consider nothing as savageness but malevo-
 lence, ignorance, and wickedness. The order of nature
 is wise and kind; in conformity to it consist health and
 long life, grace, honour, virtue, and joy; but nature
 turned out of its way, will always punish. "The wicked
 " shall not live out half his days." Sir William Temple
 says, "O temperance, thou physician of the soul, as well
 " as body, the best guardian of youth and support of old
 " age, the tutelar goddess of health, and universal me-
 " dicine of life, that clears the head and cleanses the
 " blood, that eases the stomach and purges the bowels,
 " that strengthens the nerves, enlightens the eyes, and
 " comforts the heart; in a word, that secures and per-
 " fects digestion, and thereby avoids the fumes and winds
 " to which we owe the cholic and spleen, those crudi-
 " ties and sharp humours that feed the scurvy and gout,
 " and those slimy dregs, those crudities and sharp hu-
 " mours, of which the gravel and stone are formed within
 " us; diseases to which mankind is exposed rather by the
 " viciousness than by the frailty of our nature, and by
 " which we often condemn ourselves to greater torments
 " and miseries of life, than perhaps have been yet in-
 " vented by anger and revenge, or inflicted by the greatest
 " tyrants upon the worst of men." Indolence and luxury
 have, upon the whole, destroyed more men than sword,
 pestilence, or famine. These calamities, it is true, have,
 at particular times, and in particular parts of the globe,
 raged with more distinguished violence; but indolence
 and luxury, like slow poisons, diffused through the at-
 mosphere, are at all times, and in all places, extirpating
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the human race. Many ingenious men have, and still continue to warn people of their danger, and loudly and pathetically to tell them that intemperance sooner or later brings pain, sorrow, death, and destruction; and that health, long life, comfort and happiness, are the certain reward of a regular course of living; yet men persist in their usual indifference, and continue regardless of that which can only render life desirable. They are anxious for accumulating riches, which cannot purchase ease, or bid diseases keep at a distance. Cræsus himself, when sick, was a poor creature. Without health, what avail all the pleasures of life? Without it the miser, that has hoarded up stores, becomes a burden to himself, as well as to others, and after much misery and pain, is forced at last to leave his riches to be enjoyed by others. Sir William Temple, in another place, says, “Health is the
“soul that animates all the pleasures of life; and without
“it a man starves at the best of tables, is poor and
“wretched in the midst of the greatest treasures. With-
“out health youth loses all its vigour, beauty all its
“charms, music is grating to the ears, conversation dis-
“agreeable, palaces are prisons, riches useless, honours
“and attendance cumbersome, and crowns themselves
“are a burden.” But temperance refines the man, invigorates the body, preserves the estate, renders us superior to fortune, and out of the reach of adversity. This is a virtue which is its own reward, the parent of regular passions, of sweet contentment, of healthful progeny, of happy youth, of long life and vigorous old age. If then excess in our thoughtless juvenile days, a habit of it in our more advanced age, have been the occasion of the distemper, let us amend it. But alas! it is a very difficult matter to persuade people to practise, when in health,
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what is necessary to preserve so great a blessing. Though these are truths which no body denies, yet few seem to regard. Amazing indifference! What can bewitch people to run knowingly to their own destruction? If it were a matter of uncertainty, people might then think differently, and practise accordingly; but when it is a most obvious truth, that intemperance is the parent of disease, it is an astonishing infatuation that men should still continue to eat and drink their own destruction.

People in general have so little notion of temperance, that from the cradle to the grave is one uninterrupted course of intemperance. The appetite is first vitiated upon the mother's breast, if the child is so happy to be nursed by the mother, and fed with what Providence intended for it. It is a reproach and scandal to every woman that has health and strength, not to nurse her own children. The mother's milk is the only proper food for the child, and suckling is very conducive to the health of the mother. It is the order of Providence and the law, that all the viviperous part of the creation invariably follow, except mankind, who treat their young as the crocodile does its eggs, first drops them, and then leaves chance to hatch them. Though milk is a child's natural food, yet it may suck too much; for a child often sucks from anger, pain, disappointment, and habit, and thereby hurts digestion; but it is seldom left alone in this work of injuring its stomach; either the mother, maid, or nurse, continues constantly cramming it, till indigestion produces crudities, wind, cholic, watery, slimy, or discoloured stools, and vomiting of sour phlegmy matter. To remove this evil, which they justly suppose arises from indigestion, and a weak stomach and bowels, brought on by their imprudent treatment, they give the infant hot
distilled

distilled water in its food, which relaxes the stomach still more, and hurries the ill-concocted food, with all its impurities, into the blood; the juices are injured, and a fever comes on; and lest that should not prove a speedy enough death, the child is confined in a hot room or cradle, oppressed by a load of cloaths, and bound up so fast in them, that one would think they had studied the most effectual means to destroy the life they appeared desirous of preserving. The seeds of many diseases are laid in the cradle; and if as much violence was done to children in the next stage of life, very few would arrive at manhood and old age; but at school they live pretty temperate, and use much exercise, which not only keeps them in good health and spirits, but removes many of those complaints which were formed in the cradle and nursery. Children high pampered with luxuries are generally of a thin habit and fallow complexion, and people ignorantly suppose that much strong food is necessary to support them, whereas no method could be worse adapted to furnish them with real strength and nourishment. When a child grows up a little, and gets the direction of himself, it happens at a dangerous time; when the blood circulates freely, the whole body enjoys a vigorous glow of health, the passions break forth, and the spirits being great, and just set free from what he judges the severe and unreasonable restraint of his parents and preceptors, burst out furiously, and command indulgence; then the youth glides rapidly down the current of intemperance, and drinks deep of the deadly cup. Women and wine appear to him the only earthly blessings; other enjoyments he leaves to the insensible, the fool and doltard. When he embarked in this course, the animal œconomy enjoyed the greatest harmony in all its parts; therefore

therefore its natural vigour and strength sustain the first loads of excess with less hurt, and soon throw them off with little or no artificial aid; but when the nerves and animal spirits are repeatedly agitated and put upon their utmost stretch by venereal pleasures, the blood enflamed with wine, and the stomach surcharged with intemperate eating, friendly disease stops the career, or death cuts the thread of life, and sends to dissolution that carcase which had taken so much pains to be its own executioner. If this course be not so furiously pursued, and reason, religion, engagement in business, &c. confine him more within the rules of temperance and virtue, the effects upon the constitution will be slower; he becomes insensibly weaker, his spirits more irregular and unequal; the stomach being relaxed, his appetite fails, he feels himself at times oppressed and full, little heats, and a variety of other symptoms, according to the strength and nature of the constitution, steal upon him; his appetite no longer relishes plain food, from which he vainly expects nourishment, strength and spirits; he then tries high sauces, rich cookery, and every species of palatable poison which, with drink equally poisonous, he industriously collects fuel to consume his rotten constitution.

At no period of life is intemperance so hurtful as in youth. Young people seldom want the whip and spur of luxury to excite their appetites; although their constitutions be perhaps weak and delicate, the natural warmth and activity of youth, which have not yet been checked, supply this want. Their fibres do not want the stimulus of wines or strong liquors, they are sufficiently invigorated by the natural warmth of the blood and juices, consequently such liquids can never act as cordials, on the contrary they inflame the blood and oppress the spirits.

rits. The effects of the use of wine or strong liquors in a young person are immediate fevers, or some degree of inflammation, especially if the constitution be weak and delicate, and their continued use not only corrupts and fills the blood and juices with acrid or inflammatory particles, but destroys the action of the fibres by giving them a greater degree of stimulus than is necessary to excite their vibrating force. Hence all kinds of wines and strong liquors should be avoided as so many certain, tho' slow poisons, by young people in particular, who have tender and delicate constitutions. Daily experience will convince them of this truth; and if they run counter thereto, they will soon smart for their imprudence.

Though intemperance is the great destroyer of health, yet it is absolutely necessary to keep up the strength of action in the stomach and intestines by a due quantity of food; otherwise we fall into an error equally pernicious as its excess. Hippocrates observed, that too severe a diet was a great error. As our food then is the support of life, and a very material agent in the formation of diseases, so it ought very particularly to be attended to; and as it is a subject of the greatest importance and general use in physic, I shall endeavour to explain it in the best and fullest manner I am able.

The stomach is the grand reservoir, where the food is at first lodged, from whence it is conveyed, in the manner I have already mentioned, to all the parts of the body, which is composed of two different parts, the solids and the fluids. The fluids are a heterogeneous mass of salt and other active particles, enveloped in phlegm and oil, and nourished by the finer parts of the aliments. The food ferments in the stomach like other liquors, and may, from an imperfect and unnatural digestion, become vitiated.

vitiated. There are two contrary faults in digestion. The food may be crude, slimy, windy, and sour, from a relaxed state of the stomach; or being retained too long in the stomach, it may become putrid and over-digested; in that state it acts as a strong septic on any fresh quantity of food received into the stomach, and converts it into acrid, bitter, salt, windy and putrid chyle, which gives a foetid smell to the breath. Indigestion never happens without producing some one or other of those changes in the chyle and blood, but which of the changes it is we are at a loss to know. If it were possible for us to discern perfectly the mechanical structure of all the solids, and all the motions and configurations of the fluids, we might then be able to explain diseases, and tell in what state the fluids were, whether sharp, sour, flat, windy, &c. but since that will always be impossible for us to discover, we ought not to talk too much of fancied figures and motions, because possible; all that we know for certain is, that indigestion produces wind, crudities, unhealthy chyle, and ill-conditioned blood, is the primary cause of most complaints, and is an attendant upon all.

When the fermentation, self-moving property, or velocity of the food, is diminished, we may naturally believe, that it first grows viscid, falls into intestine motions, from the action of its particles one upon another, unnatural combinations are formed, and a windy flatus is detached, which being of a volatile, expanding quality, disturbs the whole mass of fluids, which being impeded in their progressive nifus to expulsion, at length become putrid. For the fluids, as was before observed, are prevented from putrefaction by a fresh supply of food, and by the nifus of the whole mass, like wave succeeding wave, bending to expulsion.

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The solids, or circulating vessels, are formed by a number of fibres adhering to each other; and endued by nature with a certain disposition or state of preparation to admit of the reciprocal action of the nervous fluid, commonly called the elasticity of the solids. The standard of health then will be, when the fluids receive such a quantity of active particles as will be necessary, when mixed with the circulating mass, to give a gentle warmth and easy progressive motion to the whole; and when the fibres of those vessels receive a proper degree of active influence from the nerves, and have, as it is commonly expressed, a due degree of elasticity. When the fluids have a strong progressive motion; or high degree of fermentation; and their active particles hot, too much dissolved; and running into a disordered putrefaction; the nervous influence upon the solids remaining the same; fevers, spasm, and other acute diseases, must be the consequence; except this redundancy of active particles can be immediately discharged by some evacuation. If the fibres of any particular part of the body have, in any degree, lost their relative elasticity or nervous oscillation with respect to the rest of the body, the part under such a situation will be the seat of the disease, the redundancy of fluids will be thrown off by the force of the circulation upon that part, obstructions will there be formed, and a degree of inflammation or imposthumation, in proportion to the quantity and activity of offending matter, will take place. If there be no partial relaxation to direct the reflux of the redundant humours to one particular part, and no natural evacuation is increased, then the whole body will be affected by a plethora in proportion to its quantity and quality. Whenever the fibres of the minute vessels in the extreme parts of the body, where the velocity of the

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circulation

circulation is slowest, have in any degree lost the influence of the vivifying principle from the nerves, while those of the larger vessels retain their due force, the juices in this series of vessels will grow viscid, obstructions will be formed, and acrimony and putridity will take place, perspiration will be lessened, and a plethora will ensue. As long as the internal viscera and larger vessels retain a proper degree of action, the redundancy of the active particles of the fluids will be thrown by the force of the circulation upon the small vessels, and will produce scurvy and eruptions upon the skin. When the internal viscera, or larger vessels, become weakened, and have not power to throw the redundancy towards the circumference of the body, agreeable to the tendency and design of nature in the œconomy of the animal frame, then the influx of the fluids gets a partial leaning towards the internal viscera, which soon become oppressed with the plethora, and give evident symptoms of illness. When the fibres of the human body begin to lose insensibly their elasticity, or become less prepared to receive the nervous influence, those of the vessels of the extreme parts are the first which give way, as being the most remote from the seat or centre of motion, the fluids not having a due degree of velocity or moving power, will insensibly become first viscid, and then more acrid, and a redundancy of offensive matter, unfit for circulation, will be gradually formed in the body even of the most temperate person. But when the patient, labouring under such an infirmity, nourishes his blood daily with such a quantity of active fiery particles as is too powerful for his weakened vessels to circulate, the burden of this offensive matter will be so much the sooner completed, and the united force of all the vital powers must be immediately employed

employed in the most powerful efforts to throw off this oppressive load upon the extreme parts of the body, or nature must sink under it : hence the origin of the gout, and cause of its paroxysms. If perspiration be obstructed by damps, &c. the same consequence will arise in proportion to the degree of obstruction, and the suddenness of it, and also according to the state of the body before the cold and obstructed perspiration. If there was an equilibrium between the solids and fluids, and an intimate harmony and proportional influence between the external and internal vessels, and the animal powers properly distributed, then nature is able to bear up against a small temporary irregularity, and to remove the bad effects of it by its own natural powers. Obstructed perspiration, from little colds, damp air, &c. are too insignificant to produce any lasting bad effects upon the body. But if this cold is either very considerable, or if the body was not, at the time of catching it, in that harmonious order already mentioned, then some illness must be the consequence, which will bear proportion to the offending cause and state of the body at the time.

Chronical diseases arise ninety-nine times from the abuse of our constitution, for once that they arise from the natural defects of them. If we investigate the nature of most diseases, we shall find the real and original causes to be very few. Different diseases may have the same original cause, and receive their variety from the different constitutions, strength and vigour in bodies ; so that what would be gout in one, may be scurvy, stone, cholic, jaundice, palsy, &c. in another. Hippocrates says, that disorders would be found, from a strict enquiry, to have the same progress, and one similar cause, although they appear to be different kinds, because they affect various

parts of the body. Every disease is not a distinct kind of being or thing, that can be separated and known from each other, as distinct colours, or hard and soft substances; nor are there diseases (extraordinary cases excepted) unavoidably peculiar to each constitution, or to certain times of life. I do not deny that there is some truth in the saying, that the fathers eating four grapes may set the children's teeth on edge, and that there are diseases peculiar to certain times of life, to certain constitutions, and to different sexes, but not absolutely and unavoidably so to either times or constitutions, except in some very rare and extraordinary cases; and without allowing some exceptions, we should not be able to account for children being born with stone and gravel, nor for the sex having symptoms and diseases peculiar to themselves, facts well known, which no body can deny. Physicians, in their disputes about hereditary diseases, have in general run into two extremes; and in the heat of argument have left the truth between the two. Some affirm that there is no constitutional tendency to diseases; that they are all of our own making, and arise from intemperance. Others contradict that opinion, and affirm, that many diseases, as gout, scurvy, consumption, &c. are unavoidably hereditary, and that no means we can use will be sufficient to prevent them.

That there are constitutional tendencies to diseases is most obvious; both from reason and experience. Daily experience shews, that the constitution is varied in different subjects, as well as the disposition of the mind. If we see, as we often do, a resemblance in the outward form of the face and shape, and in the mental qualifications, is there any absurdity to suppose, or can there be any good reason assigned, not to believe that the same
analogy

analogy may hold concerning the quality and disposition of those parts which are not in our power to examine? What makes this analogy more probable, is, that the nerves are the common agents in both these cases. A habit of body attended with light and soft hair, a large system of arteries, marked out by a florid complexion, great sensibility, especially to the pleasurable passions, which the ancients nominated a sanguineous habit, differs essentially from one in which the hair is dark and curled, the solids rigid, the arteries small in proportion to the veins, distinguished by a small proportion of fluids, leanness and dryness, a pale and livid skin, sensibility frequently exquisite, but with great accuracy, great irritability, with remarkable tenacity of impression, steadiness in action, and slowness of motion, with great strength, which the ancients denominated a melancholic habit. They may be both equally strong, yet differ greatly in the diseases to which they are liable. In the one, all disorders attendant on an increased sensibility and large arterious system, of the inflammatory kind, as fevers, consumptions, and various hæmorrhages; in the other, disorders arising from a contrary cause, as dropsies, liver complaints, obstructions of the alimentary canal, apoplexy, palsy, and various nervous symptoms. That there are certain latent seeds of diseases lurking in the blood, which are conveyed by parents to their children, is contrary to experience, and the nature of the animal œconomy; yet parents whose constitutions are naturally weak and relaxed, cannot beget children whose constitutions are strong and robust; and, on the contrary, strong and robust parents will naturally have strong healthy children. We see many people inherit delicate constitutions and weak appetites from their parents.

There is a constitutional tendency in some people, which, from the concurrence of certain causes, renders them more liable than others to be afflicted with the gout. A constitution with this pre-disposition is subject, from even slight irregularities, to be seized with the gout, while others not framed by nature with such a peculiarity of habit, live perfectly free from that disease in all the most profligate excesses of luxury and debauch.

Though weakly delicate constitutions, and such as have a natural tendency to particular complaints, require a greater degree and stricter mode of temperance than others, to be kept in health, yet every person may prevent dangerous and chronical diseases, and enjoy a comfortable state of health, by temperance. It is not impossible to grow old without sickness of some kind or other. Intemperance is the great destroyer of health, and is either the parent or nurse of every disease, and in a general sense may be called the author of all bodily evils; for diseases, for the most part, are our own dear purchase. That there are men, whose robust constitutions are able to bear almost every excess with impunity, at least for a time, does not invalidate the general rule. We sometimes see people escape unhurt from excesses, which we should expect would prove fatal to them; while, on the other hand, an indulgence, seemingly the most trifling, evidently lays the foundation of a most inveterate malady. But if one indulges in excesses for a time with impunity, I will venture to say, that no person, whatever his constitution may be, can long transgress the bounds of nature without smarting for his folly. It is observed of epicures and great eaters, that though youth and a strong constitution support them for a while, they are either unexpectedly cut off at last, or find the symptoms of old age, with many pains

pains and diseases, attack them early in life; and it is but just, that as they make their beds, so they should lie. And where is the drunkard that does not repent, or has reason to repent of his folly? The strong, by bad habits, will become weak; and the weak, by good, will become strong. Though the bad effects of intemperance are at first small, and not instantly perceived, yet they are certain. The danger is the greater, because it advances imperceptibly; if it boldly attacked us at once, we should be alarmed, and stand upon our guard; but it insensibly creeps upon us, and saps the foundation before we are aware of the danger: it is the constant course of life, what we do and neglect to do every day; that, if right, establishes our health; if wrong, makes us invalids for life. The daily accumulations of indigestion bring at last some chronical disease. If a greater quantity of food be thrown into the stomach than it can bear, its coats are over-stretched, and not able to exercise their digestive powers; and every day's error added, soon brings on a natural imperfection and relaxation of the stomach; the food lying longer in the stomach than by the laws of the circulation it ought, and undergoing a disorderly fermentation, occasions crudities, acid, sour belchings, sickness, vomiting, pain, inactivity, stupor, and head-achs. The stomach has a very intimate connection with the brain and nervous system. Nothing affects the mind more than the state of the stomach, and nothing draws the stomach into sympathy more than the affections of the mind. This is evident in hypochondriacal people, whose disease being chiefly seated there, have often grievous affections on the sensorium commune, or the seat of the senses. This is farther illustrated by wounds of the head. There is also a very great connection between the state of the

stomach and the extreme cutaneous vessels. Those that have crudities, indigestion, oppression and loading at the stomach, have a hard, shrivelled, and dry skin, and obstructed perspiration. The food having thus injured the stomach, and produced so many symptoms of illness, passes from the stomach to the lacteals, and so on till it arrives at the smallest vessels, and the whole body labours under a plethora. The vessels have a greater quantity of ill-concocted fluid forced upon them than they are able to convert to the wholesome nourishment of the body, have their coats over-stretched, and their powers being consequently impaired, they become obstructed. When obstructions are once formed, which may sometimes be the case before we perceive ourselves injured, the obstructed matter, which never was perfectly concocted in the stomach, soon putrifies, and is conducted by the absorbent vessels into the mass of blood. When the morbid matter is once conveyed into the blood, and intimately mixed with it by circulation, then it acts as a septic ferment, and corrupts the whole mass of fluids, already too much inclined to that state from indigestion, obstructed perspiration, and the tendency of their course being too much directed to the internal viscera. After these causes have continued to operate some time, we may consider the whole body as in an advanced state of putrefaction. Then the spirits are clogged, the strength enervated, obstructions and schirrous tumours may be felt in the flesh. If the solids retain a tolerable degree of strength, they throw out part of the offending matter upon the skin, in form of pustules, which are diversified according to the nature of the constitution. If the solids are more relaxed, or much infectious putrid matter imbibed from the air, then fluxes and putrid fevers come on. In such a state,

state, every meal makes an additional load to oppress the weakened and relaxed fibres. If the solids, after all the violence done to them, remain tense and hard, and the constitution hot and bilious, or if the fluids are burnt up with a large quantity of strong liquor or high dishes, if nature be not strong enough to throw off this acrid load by a painful fit of the gout or rheumatism, or some other critical discharge, and by stopping the career of intemperance, gain a little respite to the constitution, an inflammatory or hectic fever must immediately arise from the irritation, and soon put an end to life; a blessing too valuable for those who so wantonly sport with it.

People in general eat too much; for a little well digested and assimilated will nourish the body more, and render it more vigorous and strong, than when it is loaded with food. If a man, says Hippocrates, eats sparingly, and drinks little, he brings no disorder upon himself. Besides the quality, Dr. Cullen says, we should pay great regard to the quantity of our aliment. Haller very justly observes, that a moderate quantity of food nourishes best. When there is reason to fear the approach of bad health, Galen tells us, the best medicines are rest, abstinence, and cooling drinks; by such a course even violent diseases may be prevented. Some, says he, vainly attempt to remove languors in the beginning of fevers by exercise, the warm bath, purging, sweating, and cordials, but abstinence will never disappoint. It is surprising how small a quantity of food is necessary to support nature, and what sprightliness, vivacity and freedom of spirits, a person enjoys that lives temperately, and eats a very moderate quantity at a time. Whoever would have a clear head, must have a clean stomach. If we would be so complaisant to the ordinances of the church,

as now and then to keep a fast-day, we should find our account in it.

Plethora and obstruction being the general and immediate cause of diseases, evacuation of one kind or other is nine parts in ten of the cure. *Contraria enim contrariis vincuntur*. Bleeding, blistering, issues, purging, vomiting, and sweating, are only designed to carry off what has been superfluously swallowed by intemperate eating and drinking; and cordials, bitters, and alteratives, are only means to repair a stomach furred with gluttony and drunkenness, and to evacuate gross and poisoned humours by insensible perspiration, that sweet and well-concocted juices may supply their place. How ill do vomiting and purging supply the place of temperance; bleeding, blistering, and artificial evacuations, that of activity; and cordials, drams, and distilled waters, make up the loss of peace of mind?

No certain quantity of food can be prescribed as a general rule. What is necessary for one may be too much for another, and too little for a third. We ought never to be directed to the quantity or choice of our food by the example of others: because one man eats and drinks such a quantity without finding any bad effects from it, is no reason that another of a different or more delicate constitution should do the same. Nature is very watchful over us, and gives us all the assistance that one might suppose rational beings stood in need of. The powers of digestion are adapted to the want of blood in the blood-vessels. If they are not sufficiently full for the purposes of health, the appetite is great, digestion is strong, and much blood is formed; if they are properly filled, there is little appetite, small digestion, and less blood is created. Lean people in general have good appetites and good digestion,

fat

fat people have small appetites and weak digestion. Our stomach is in general a pretty good judge.

Our feelings were given us, both in health and sickness, for the wisest purposes; and it may with truth be asserted, that thousands have perished from being inattentive to their dictates, for one who implicitly submitted to their guidance. In the articles of meat and drink, where the palate may sometimes be accused of deceiving us, it may be justly questioned, whether any one ever suffered considerably in health without being repeatedly admonished by very strong sensations of the necessity for altering his course of life. Our appetites, if not vitiated, are upon many occasions the faithful monitors, and point out the quality of such food as is suited to our digestive organs, and to the state and condition of the body. For where there is a disposition to a scorbutic corruption, from a long continuance in a moist sea air, with viscid, salt, or putrid food, nature points out the remedy. In such a situation, the sailor ardently longs, with the most craving appetite and anxiety, for vegetables and fruit, and devours with unrelenting fury every thing that looks green, from whose healing, attenuating, saponaceous, and acescent virtues, nature tells him he will find relief; and the effects of such food are well known to every body. When a person attempts to live upon flesh meat alone, though it be fresh, his appetite becomes keener, and even ravenous; and nature will crave for some acids and vegetables to correct the alkaline acrimony of the blood. And when he lives upon vegetables alone, whereby the stomach will contract an acid tendency, he will find a craving for animal food to temperate the acidities. In diseases, if the patient be left to his natural feelings, he will desire and long for what is wholesome. In fevers, the patient loaths and abhors, without

without knowing the reason, all meat, particularly flesh-meat, and longs for cooling acidulated drink ; in lowness, we wish for cordials. All animals, by instinct, are directed to their proper food ; and by the same method, perhaps, are patients sometimes prompted to desire what will do them good. The longings which people sometimes have in illness for particular things are astonishing ; yet what nature, from an inward feeling, makes a person thus strongly desire, ought seldom to be denied, as it is rarely found to do hurt, for the most part does good, and sometimes is the most certain prevention and best cure of the disease. It may, I believe, be put down as a certain rule, that the stomach, in disorders, very seldom anxiously craves for any thing that is not highly beneficial, although the propriety of it may not be apparent to the physician ; and even when it craves things which seem to him hurtful, it will be in the right nine times out of ten, contrary to his judgment ; therefore the physician should rejoice, when at the height of a disorder the patient is seized with a longing for any particular food or drink ; he should, for the most part, be indulged in it. But as bad effects have been known to follow an indulgence in those things which the stomach desired most anxiously, it is of very great consequence to fix upon a criterion, whereby to judge with some tolerable certainty when we ought to refuse our assent to its dictates. When these longings arise before the disorder begins to decline, they should never be resisted ; but when a change for the better has taken place, especially if the pulse comes nigh the natural standard, then the patient's longing, if it appears improper, should not be indulged ; for no prudent physician would wish to run any risk, but be guided by his own judgment, not the patient's inclination.

We are too apt to judge of temperance and intemperance from what we see others do, and from our own habits without considering the matter. This is a very erroneous way of judging. One man has a gigantic constitution, can drink his bottle or two, and can eat two or three pounds of meat; another cannot exceed a pint of wine and half a pound of meat: Is then the person of the delicate constitution to measure constitutions with one above his match, and to vie with the other either in eating or drinking? If he does, he will soon dig his grave with his teeth, and eat and drink himself to death. An excess of a gill of wine or an ounce of meat is as hurtful to the one, as a bottle of wine or a pound of meat to another. Though we perceive that a person in health and in a sound and strong state of body, has a wonderful power of digesting the heaviest foods, and of converting almost every sort of alimentary substances into nourishment at times, yet reason tells us, and experience confirms it, that some kinds of food are easier to be digested than others, and that a variety in the constitutions is always attended with a difference in the powers of digestion. And a person that determines the quality of any particular food to be good or bad, because he sees others eat it, or as it agrees with him, draws too hasty a conclusion. For what is one man's meat may be another man's poison, and a weak stomach may at times digest very heavy and unwholesome food. We ought therefore to examine the stomach, and never eat what lies heavy, is long in passing off, rises in the stomach, or occasions wind or flatulency. Our stomachs and appetites, if left to themselves, not vitiated and debauched by the fashion and habit of intemperance, would never fail to direct us right in the quantity and quality of our food; but in a
vitiated

vitiating state they are not to be trusted. We are then unable to distinguish between the real wants of nature and the artificial calls of habit; and when we find the last hurtful, we do not lay them immediately aside, and never after bestow one thought upon the onions and garlick of Egypt; we do not lessen the quantity of our food, live upon plain dishes, and lead the life of rational creatures, which is certainly rewarded with good health, length of days, and peace at the last; but contrary to truth, reason, experience, and every motive that should direct a man's conduct in this life, we continue the contemptible and ignominious slaves of habit and fashion. And though pain, flatulencies, crudities, load and oppression at the stomach, sour belchings, heaviness after dinner, unwillingness to move, weak eyes, foetid breath, restless nights, head-achs, nocturnal fever, clammy mouth and furred tongue, with many other disagreeable symptoms already mentioned, are the immediate consequences of over-eating, and give warning of the approaching danger, we continue regardless of the admonition; but, in return for such services, we endeavour to lull our monitor to sleep, or deprive him of his existence by poison: for the very food which is taken to nourish and support the body, will prove its destruction, and do the friendly office of an executioner. What kind of nourishment can arise from such a load of putrid matter, the very steam of which sets the teeth on edge, and what is thrown off the stomach will corrode metals? Can the blood be pure which comes from such an impure fountain? No wonder people complain of weak nerves, no wonder the body is covered with unseemly blotches, stinking ulcers, &c. Though these are the blessed effects of intemperance, we will persist because it is the fashion, and we have been accustomed to
such

such a way of life, and have contracted habits which we don't chuse to break.

We are all so much the creatures of habit, which forms and fashions us to good or ill almost as much as nature itself, and is often so interwoven with our constitution, that we are at a loss to distinguish, and are apt to mistake for nature what is only habit. Custom, Dr. Cadogan says, has made all kinds of incentives to excess so common, that those of daily use, far from being considered in the class of intemperance, are by most people thought to be not only salutary, but necessary; they never suspect the least evil from the common decoraments of the table, yet excess in them is doubly prejudicial, hurtful in themselves, by provoking the appetite, beyond natural satiety, to receive an oppressive load, which the stomach itself would soon feel, loath and reject, were it not artfully stimulated to discharge it into the blood by wine and strong liquors immediately after. Thus one error brings on another; and when men have eat too much, they drink too much also by a kind of necessity. If the common decoraments of almost every table are intemperance, what shall we say of the rich man's table, where the four quarters of the globe are searched to find out new poisons? Some, particularly young people, and those who have relaxed, irritable, and delicate fibres, do not, for the most part, injure their constitutions so much by the quantity which they eat, as by its quality, the latter very often, by high-seasoned dishes, filling the vessels with acrid juices, which are unfit for the circulation, although these vessels are not surcharged.

If diseases arise chiefly, as most certainly they do, from intemperance, as a necessary effect from a cause, it is the greatest absurdity to suppose that the effect should not accompany

accompany its cause, and that a man should be cured of a disease brought on by intemperance, while he continues to be intemperate. A medicine cannot prevent his intemperance; therefore cannot cure the disease, which it has created and supports. Medicines may give a little temporary relief; and enable the person to bear his intemperance a while longer; but a daily renewal of the same course will prevent the good effects of medicine, and at last destroy the vital powers, and put an end to a life daily spent in acts of self-murder; no better than the man, who for some time had been attempting from time to time to cut his own throat, and in his different attempts had made small wounds, which were wholly and sometimes partially healed, till at last, the parts being so injured, torn, cut, and destroyed by daily acts of violence, he succeeds, cuts his throat, and dies. A person may be equally guilty of suicide, who, being sensible of his error, discontinues it some time before his death, yet had repeated the unnatural and violent acts so often, that the parts are too much injured for art to heal, or temperance to restore them; they accordingly mortify, and the patient dies. Oribasius says, if people be slaves to their appetites, we ought not to undertake their cure.

If then so much depends upon fashion and habit, let us have resolution to say, We are not in love with disease; we wish to live longer, and will not be poisoned because it is the fashion. Let us be very careful and attentive that our habits tend to the establishment and security of our health and life, and not to the destruction of both. Whatever habits we have contracted of an evil tendency, we must resolutely at once lay them aside; and substitute in their place good ones of a contrary tendency. It is not what we do now and then that can injure us greatly, but

but what we do every day, or for the most part; though I think a person carries his complaisance too far, who is even guilty of one debauch in eating or drinking, because his friend has been very studious to collect materials for the temptation. Every person ought to rise from the table with an appetite to eat more; and were people in general to diminish their usual quantity of food one third, never to eat except they are hungry, to fast now and then, and when they have transgressed a little, to do penance, and live a day or two either upon water-gruel, or very sparingly upon some wholesome food, they would find infinite benefit from such a conduct.

Some are intemperate both in eating and drinking ignorantly, not knowing that they were wrong, as it had been their common practice, and that of all their neighbours. To them it will be of use to point out some of the meats and drinks that are injurious to the human body, corrupt the blood and juices by their acrimony, weaken the fibres, form obstructions, and lay the foundation for a train of chronic diseases; and at the same time to direct their choice to better things. I do not pretend to lay down rules in an absolute manner to suit all ages, constitutions, and situations in life; but only to point out the general properties of our food, and to leave every person to make the application to himself, as his age, circumstances, constitution, and nature of the disease, require. After all that can be said, every rule and precept of diet, as well as distinction of aliment into wholesome and unwholesome, must be understood only as relative to the constitution, state of the body, and climate. What is sobriety in one may be drunkenness in another, and what agrees with one may disagree with another. If a man lives on a very slender diet, and drinks

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water,

water, in the fens of Lincolnshire, he will almost infallibly fall into an ague. A child and a grown person, a valetudinarian and a man in health, and the same person, in different seasons of the year, in cold, damp, hot, or dry weather, in southern and northern climates, require different qualities of aliment, and some variety in the liquor.

Every kind of flesh-meat is in a perishable state, and has an alkalescent putrid tendency, soon becomes putrid in the stomach, and in that state is easily and quickly digested, but is apt to ferment too much, or rather to run too rapidly into a state of corruption, and occasion surfeits. Animal food fills the vessels fuller of blood, increases the muscular strength, stimulates the solids, and occasions quicker circulation, and a greater tendency to inflammation and fevers than vegetable food. Therefore the too liberal use of animal food is very improper at all times, but especially in hot weather, and in summer, for heat is a strong sceptic, and gives the meat a very great tendency to putrefaction. In all putrid and inflammatory diseases, as putrid fevers, scurvy, consumption, &c. and where there is any unnatural heat in the blood, the patient ought to avoid animal food, and live chiefly upon vegetables. Vegetable food in general is milder, easier digested, less stimulating, and does not load the system so much as animal food. The inconveniencies arising from indigestion are less dangerous than such as arise from undigested animal food. Vegetables correct the strong spontaneous tendency of animal food from advancing too far in a state of putrefaction, and their windiness and acidity are corrected by the addition of meat. So that a just proportion of each is very necessary to create healthy juices, and to prevent diseases. People in general eat too much animal, and too

little

little vegetable food, which is the reason that scurvies, putrid and inflammatory fevers, and acute diseases, are so common. We see how liable sailors are, on a voyage, where there is a scarcity of vegetables, to be affected with the scurvy, and how soon they get free of that disorder when they come ashore, and have the free use of vegetables; which plainly proves the advantage, nay, necessity, of a due proportion of vegetables in our food. Dr. Haller observes, *Vegetabilia requiruntur tamen, ne solis carnibus pastus homo sanguine repleatur, et nimis putrescibili, qualis in anthropophagis certa fide regnat et scorbutem fecit, et ferocitatem, faectorem, lepram, corruptionis lixivæ omne genus quæ omnia mala mutata diaeta et vegetabili acidulo victu unice superantur.* Dr. Cullen says, I have known several instances of scurvy in excess produced by a long continued use of animal diet. A large quantity of vegetables should be constantly mixed with animal food, to take off its putrescency, and to prevent it from corrupting while it continues in the stomach, to regulate the fermentation or digestion, to cool and refresh the whole mass of blood, and to check its too great tendency to dissolutions. People living mostly upon animal food have keen and carnivorous appetites, and eat with an appetite more than nature requires; vegetables serve to blunt or regulate the too eager desire for food. In short, we should eat in great moderation, and make vegetables the principal part of our food. But in regulating the exact proportion the animal and vegetable part of our food should bear to each other, regard should be had to the season of the year, the state of the weather, constitution of the body, and other circumstances. In hot weather, warm climates, putrid infectious air, plethoric habits, constitutions subject to acute complaints, or a heat and

dissolution of the blood, and where the person lives a sedentary, indolent life, or has a delicate nervous constitution, much animal food or strong drink is very prejudicial: on the contrary, where the climate is cold, the weather clear, or frosty, the constitution strong and fibres tense, and much exercise is used, a larger quantity of animal food is required. The tenderer and softer flesh is made by keeping for some time without salt, it is found to be the easier of digestion. Therefore our animal food should be hung up in the open air, till its fibres have lost in some degree their toughness, but not till they have lost their natural sweetness; therefore the moment the meat begins to grow putrid, that is, when its volatile alkaline parts are so much developed, that they affect the smelling, it becomes very prejudicial to the human body, affords no good chyle, and even becomes disagreeable to the palate, which loaths and rejects it. The time required to make meat tender will be longer or shorter according to its nature and the state of the atmosphere. Afterwards it should be roasted or boiled moderately, not to injure the juices by the action of the fire. Then it is that the animal food is in the highest perfection for eating, easiest digested, and its juices the most mild and salutary for the human body. When meat is boiled too much, its juices are lost, and it becomes hard, dry, and difficult of digestion. When it is too much roasted or broiled, its mild nature is changed, the fat becomes rancid, and, as well as the lean, acquires a degree of acrimony which is extremely prejudicial to the human body. When meat is long hardened and dried with salt, the subtile, finer, and nutritious parts, either fly off, or are fixed. Experience shews that flesh long salted is of very difficult digestion, and after all, it affords a gross and unconquerable

able chyle, and the animal oil or fat of the meat becomes rancescent, the nutritious particles are intimately entangled with salt, which cannot without difficulty be extricated from them by the powers of the body; too much salt is by that means conveyed into the body with the chyle, and in this sense only salt is prejudicial. Gross oil, animal fat and butter, are not only the most unconquerable part of our aliment, and of all things the most difficultly digested and fermented, especially if the meat be much roasted, and the butter melted by the fire, or mixed in sauce, then they are very apt to turn rancid upon the stomach, particularly when there is not a strength of fibres sufficient to throw them off; but when there is already a preternatural tendency to putrefaction, as in putrid fevers, scurvy, &c. they are apt to acquire the highest and worst degree of putrefaction. They also relax the stomach, and clog the mouths of the absorbent vessels. The lean of meat is therefore more wholesome than the fat, and fresh unmelted butter than salt or melted. It is a common notion, that the gravy of meat is unwholesome, and promotes the gout and scurvy; on the contrary, nothing is more nutritive, and is always proper where animal food is so. The lean of fat meat is easier digested than that of poor, and meat little roasted or boiled than much. Young meat has most viscosity, and is not so nourishing, or easy of digestion, as beef or mutton. Smoaked, hung, or potted beef, is not only hard of digestion, but by keeping has lost some of its finer and more aromatic parts. Chickens, turkies, and capons, are not so easily digested as wild-fowl, but are not so heating. Pigeons, snipes, moor-game, plover, woodcock, and all wild-fowl and venison, are easily digested, but very heating, and much inclined to putrescency. Rabbit

is a light food, and sits easy upon the stomach; hare is dry, and not so light. Pork is very nourishing, therefore a person should not eat too much of it at one time. Geese and ducks are juicy, nourishing, and heavy food, therefore should be used sparingly, but in the common way they are dressed with stuffing, it is no wonder if they should rise on the stomach; and to remove this inconveniency, people take a dram, to hurry it, in that heavy, unconcocted state, into the blood, to foul and enflame it, lest the stomach or bowels, in discharging it upwards or downwards, should have given them some relief. It is not mending the matter to hurry what disagrees with the stomach into the blood: but it is a mistaken notion to drink a glass of spirits after dinner to assist digestion, for spirits do not assist, but impede digestion: a glass of water is the best digester. Tripe and calves feet are less soluble in the stomach than beef and mutton; for food of a seemingly firm texture is of easier solution than that which is more loosely compacted, but which contains a more viscid juice. This is found in much larger quantity in the ligamentous, membranous, and tendinous parts, than in the muscular. Jellies, broths, and all kinds of sops, weaken, and very much relax the stomach, and are prejudicial at all times, particularly in sickness; when strong, are harder to be digested than the same weight of solid food. Milk diluted with water is wholesome and nourishing, and partakes of the vegetable and animal nature; undiluted with water, it is heavy, viscid, and windy. Skim-milk is very unwholesome. In all putrid diseases of the chronic kind, consumptions, &c. a vegetable or milk diet, which is only one degree removed from a vegetable state, is very proper, and indeed absolutely necessary, in order to obtain a perfect cure. Poor cheese is very unwholesome;

some, and the poorer it is, the more difficult of digestion ; when rank, it is in a putrid state, and should then be eat in a very small quantity, to assist digestion when the stomach is weak and cold. Cheese, in any considerable quantity, is only fit for strong, robust, hard-working people ; when toasted, it is particularly unwholesome. Cheese, it is said, assists the stomach to digest other matters, but is itself difficultly digested. Eggs are nourishing, heavy food, and soon become putrid in the stomach. Fish become sooner putrid than meat, and are consequently very unfit where flesh-meats are so. The texture of white fish is tenderer than flesh, consequently easier digested : other kinds of fish have a viscosity which prevents their being easily digested, therefore are not proper where there is any great viscosity in the blood, as in the asthma ; in sickness, and where the stomach is weak, they are unwholesome. Eels, salmon, trout, smelt, &c. should therefore be sparingly used, with a large draught of plain water immediately after. Flour is of a viscid nature ; the wholesomest is what is made from the whole grain ground down, and no separation of it into fine and coarse. In the extremities of the grain there is a sweetish honey-like juice, which has an opening, cooling quality, and corrects the astringency of the heart of the kernel, and never should be separated from it. Hard-working people should use the finer flour. The use of bread is both universal, and from the earliest account of time. This universal desire of mankind is undoubtedly owing to a natural instinct. Bread serves to assimilate and mix our food properly, regulates digestion, will sit easy in most weak stomachs, corrects the putrescency of the meat, is extremely wholesome, and with animal food absolutely necessary. New bread, if it does not occasion too much

wind, which it is apt to do, especially where there is any putrid colluvies in the stomach, is most wholesome. All farinaceous substances, in particular wheat-flour, require a previous fermentation, in order to break the glutinous viscosity which it acquires by being mixed with water, and thus to subdue, out of the body, the mucous tenacity of its oils, and make them more miscible with the different humours, which otherwise people in the best health, and with the strongest force of digestion, find a difficulty in doing. But where the organs of digestion are weak, no proper nourishment can be received from farinaceous substances made into bread, batter, and sewet-pudding, dumpling, sea-biscuit, pye-crust, and all kind of such pastry, because their lentor and mucosity is not subdued by fermentation, or any other method by which they become lighter food. Flour and water boiled together to make a pudding, forms a tenacious, glutinous paste, requiring great exertion of the powers of digestion to subdue and assimilate it into nourishment, and weak, inactive, valetudinary people, are not able to digest such food at all; though it may be subdued in the first passages, and divided by diluting it so as to enter the lacteals, yet it cannot be broken to a sufficient degree of fineness perfectly to assimilate to the other juices, to correct their putrid tendency, and to repair the decays of the body. Hence the natural tendency to a spontaneous putrefaction, for want of proper chyle and nourishment, is accelerated, and evident symptoms of scurvy appear; and this crude chyle not being elaborated or expelled the body, must, by repeated circulations, and continuing longer in the body than by the laws of nature it ought, become putrid together with the other juices, and are very improper food for sailors, and where there is any scorbutic tendency in
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the blood. Our bread should be well fermented in baking; for by fermentation, and the acid in the leaven, the glutinous viscosity and tenacious oils of mealy substances are broken and subdued, and they become easily dissolvable afterwards in water, which before they would only make a paste or glue, and are now miscible with all the humours of the body. Well baked bread, which has undergone a sufficient degree of fermentation, is of light and easy digestion, and very proper nourishment for man, who lives so much upon animal food which is qualified by the acescency of the bread. Peas and beans having hardly any aromatic parts, are apt in weak stomachs to breed flatulencies, and occasion indigestion, and, like all other farinaceous substances, give a viscosity to the water in which they are boiled, and afford gross and improper nourishment. Potatoes are of the farinaceous kind, and contain a very acrid juice, which is by boiling or roasting pretty much evaporated, otherwise they would gripe and purge greatly: they are at best a heavy, stuffing, though nutritive food.

We see how bountiful Providence is in providing for the wants of all its creatures, and how watchful over our health. In summer, when flesh-meat, particularly salted, is very unwholesome, nature supplies its place with plenty of the choicest variety of vegetables, and especially of fruit, which is the lightest, most wholesome food we can eat. In quantity we can hardly transgress, if the bowels are not affected with their coldness and acidity, which sometimes happens when the *primæ viæ* are very weak, cold, tender, and relaxed. Cucumbers and melons indeed are cold, heavy, and not easily digested. The liberal use of fruit at all times, particularly in summer, would prevent and cure many chronical and acute diseases. The
consumptive,

consumptive, asthmatic, hectic, scorbutic, and gouty, should live much upon fruit, but when pickled are not so easily digested, heavy, and less wholesome, and as provocatives, lead on the stomach to eat too much. It is observed, that those who watch the vineyards, and feed on grapes, figs, and bread, are remarkably healthy, though at that time of the year epidemic complaints are most frequent and dangerous. The skins of no fruit should be swallowed. Sugar too is very wholesome, assists digestion, prevents putrefaction, cools and keeps the body open, and affords a considerable nourishment in itself. As there is no man, however careful of his health, that does not occasionally transgress a little, I don't mean to a degree of surfeits or intoxication, the best remedy in that case is to live upon fruit, water-gruel, and light bread, till the effects of that excess are removed. In hot countries Providence has taken care to relieve its parched inhabitants, by supplying them with the finest and most choice varieties of acid or acescent fruits or juices, adapted to their situation. The people of Spain and Portugal, Turkey and Asia, live in general on grapes, peaches, nectarines, figs, and melons. Those who live within the tropics have their woods or groves filled with oranges, lemons, citrons, and other delicate fruits. As they approach nearer the line, they have also pine-apples: on these they live in health, and by these they recover when sick. They are not less efficacious in putrid diseases here, than in Greece, Italy, Africa, or the West-Indies. Van Swieten says, the juice of ripe fruits requires no preparation, extinguishes thirst, tempers heat, opens the belly and urinary passages, and furnishes the most excellent solace to a stomach oppressed with putrid bile; they correct all putrefecency, resolve, by their detergent qualities, all bilious concretions;

concretions ; and while they do not relax the solids too much, they refresh the spirits by their fragrance. Bread, vegetables, and fruit, prevent the animal food from running immediately and too violently into putrefaction, and neutralize the chyle to such a degree as is necessary to produce good blood. Walnuts, chesnuts, filberts, almonds, chocolate, coffee, and common nuts, have a bitter, astringent, stuffing, and drying quality, and are unwholesome, particularly to asthmatic people, though a cup of strong coffee will give relief in a fit of the asthma, but it should not be too often repeated. Coffee seems to have a sedative quality, and will do good in head-achs, languor from over exercise, and in humid temperaments of body. In all bilious constitutions, where there is any obstruction in the liver, nuts ought to be avoided. Raddishes, onions, garlick, shallott, parsley, cellery, and all the aromatic spices, as cinnamon, cloves, nutmeg, mace, also pepper, mustard, and horse-raddish, are powerful stimulants, increase the circulation of the blood, and occasion inflammatory fevers : they should be little used with animal food, and never in gravel, gout, asthma, scurvy, or where there is any unnatural heat in the blood, even with flatulent vegetables, where, in other cases, they may be used in great moderation. When the stomach is weak and cold, and in dropical, nervous, and paralytic cases, a moderate use of these decoraments of the table may be allowed, as more powerful stimulants are required to assist digestion, and the natural weakness of the stomach prevents their inflammatory quality from injuring the constitution. Spices are least hurtful in summer, except with animal food, because then the stomach is weakest. Spices are the produce of warm climates, where they are most needed. Cabbage, colliflower, and brocola, are not
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very nutritive, but they serve to correct the putrescency of the animal food, and their flatulency is prevented by a moderate addition of animal food; yet they are not very proper where there is any windy rarefaction of the humours. Carrots, turnips, spinnage, artichokes, asparagus, and parsnips, are very wholesome, nutritive, easy of digestion, cooling, diuretic, and extremely useful in all cases, both as food and medicine. We should use acids with our food, both animal and vegetable; nothing is more wholesome; they strengthen the stomach, create an appetite, assist digestion, qualify and temper the food, prevent putrefaction, correct flatulency, cool the blood, and regulate the circulation. Vinegar and lemon may therefore be freely used by all ages and constitutions. If I did not observe an universal instinct, (with very few personal exceptions) which is never implanted in vain, directing to the use of salt, I should have been apt to declare it hurtful, or at best indifferent, and more a common luxury of the palate than a part of diet necessary for health, as we see it hardens the fibres of flesh, and therefore retards digestion. Some few individuals, which are an exception to the general practice, eat meat without salt, to which they have a dislike, and yet are very hearty and robust; and dogs, and all carnivorous brutes, live upon flesh-meat without salt; but as it has been universally used in all ages of the world, and by all creatures in general that can get at it, it certainly answers some valuable purpose, and should not be discontinued, especially where people eat much animal food, which has a natural tendency to quick dissolution, and the salt corrects, regulates, and checks that speedy solution of the food, detains it longer in the stomach, and gives the stomach more time to elaborate and convert it into healthy chyle; and wind, inflammation,

inflammation, and all diseases of the putrid kind, as scurvy, &c. are thereby greatly prevented. Mastication, or chewing our food properly, very much assists the stomach to digest it, and may be called the first act of digestion.

It is wrong to eat of a great variety of dishes, for the discordant qualities (as Hippocrates says) of such dissimilar aliment create intestine commotion, and are digested, some sooner, and others later. Simplicity of food requires no physical alteratives, and exercise, with temperance, is the best cathartic. There is more hurt by protracting the appetite into excess, in quantity, by the variety of dishes and decoraments of the table, than by the dishes and decoraments themselves, though they are also exceedingly pernicious. Nice cookery is a dangerous bait, and too often catches those that are most upon their guard; and variety of high-seasoned dishes betray the appetite, and engage it to exceed the bounds which nature has fixed, by which means the stomach is overloaded. It is astonishing to see what pleasure people take, and how industrious and ingenious they are in their entertainment, to injure the health of one another, as if they were their heirs at law, and wanted immediate possession of the estate. Variety of dishes, says Dr. Cheyne, the luxurious artfulness of cookery, and swallowing wine after every bit of meat, so lengthen out the appetite, that there is no security from it among the better sort of people. 'Tis amazing how the voluptuous and lazy people of delicate constitutions should think themselves able to carry off loads of high-seasoned food and inflammatory liquors without injury and pain, when strong laborious men are scarce able to live in health and vigour to any great age, on low, simple, and frugal diet. If the voluptuous and effeminate
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were exposed to the same inclemency of weather, the same degrees of heat and cold, that the sober industrious poor are, it would kill ninety-nine in a hundred. People in common suck in poison with their daily bread, and our fashionable cookery has converted into poison what Providence intended for our nourishment. Our ancestors were contented to live upon common vegetable and animal food, dressed in a plain manner, and taking the due proportion of each as nature has dictated, they very rarely had the gout, or any other chronical complaint. But at present no person will eat, as Cadogan justly observes, the most common animal food, without having it seasoned with pepper, or other hot spices, with pickles of different kinds, garlick, onions, horse-raddish, or other sharp, hot, and inflammatory things. Even a dish of fish is not regarded, except it is done up with Caian pepper and rich sauces; and whenever these sharp and inflammatory things incommode the stomach, they are washed down with rich wines and drams, and thus is the blood loaded with those acrid fiery particles, which lay the foundation for the gout, and most other chronic diseases. French cookery, says he, and all those high dishes, wherein even luxury herself is debauched, has destroyed inconceivable numbers of young persons by consumptions, and those who have strength of constitution to withstand its sudden effects, have fallen a sacrifice to the gout and other chronical diseases.

We should not eat when very hot, nor presently after exercise; and exercise soon after eating interrupts digestion, and occasions erudities; eating one meal upon the back of another does the same. Custom should never prevail upon us to eat at any stated hour if we are without an appetite at that time. As the meals ought to be moderate,

so the times between eating ought not to be at too great a distance : so when the stomach is employed in digesting the food already taken, a fresh quantity should not be added. A person that sits much, ought to eat little : a light supper of milk, vegetables, fago, artichokes, spinage, fruit, water-gruel, &c. is wholesome, because it is easier for the stomach to have a small quantity to digest at a time, than to be overloaded and oppressed with it all at once. As a certain quantity of food is absolutely necessary for the growth and nourishment of the body, water-gruel of all others is the best supper, but I fear it is not expensive enough to come into general use. People that eat no supper and little breakfast, find a very keen appetite at dinner time, and are unable to refrain from eating too large a quantity : at the same time as they eat no supper and little breakfast, they fancy that they live very temperately, and ought to eat a hearty dinner. This is a mistaken notion : if they were to fast twice the length of time, and eat too much, (commonly called a hearty meal) the fasting before would not prevent the bad effects of that plentiful meal. The stomach is relaxed by fasting too long, as the body is by indolence ; therefore something at proper hours should be put into the stomach for the digestive faculties to work upon ; it also prevents wind and vapor which are apt to be troublesome. Supper should be taken two hours before bed-time. By the warmth of the bed the heat is increased upon the surface of the body, and the humors circulate quicker to the skin, and pass off faster by perspiration, therefore the supper should be very light, lest the humours by the labour of the stomach get an internal direction, and perspiration be thereby impeded. It had been

been far better for mankind, if the use of tea had never been known; though it is possessed of a sedative power, which is small in comparison with many other substances, yet in consequence of the frequency of its use, it has proved upon the whole far more pernicious in its effects than many other deliterious sedatives: it is hurtful to the nerves, produces indigestion, acidity, heart-burn, spasmodic pains of the alimentary canal, watchfulness, tremors of the hands, feebleness, irritability and dejection of spirits: the heat and quantity of water add not a little to its bad effects. If occasionally used as a medicine, it will remove head-achs, spasms, indigestion, and after much fatiguing exercise, it will refresh the spirits. Tho' there are some constitutions so robust as not sensibly to feel the effects of its sedative quality, yet the same argument might be alledged with equal ingenuity in favour of the habitual use of opium, spirits, and many other things possessed undoubtedly of noxious powers.

Water is the proper menstruum to dilute our food, and assist digestion. It is the most wholesome of all liquors, and will agree with all constitutions; it dilutes and washes away any putrid colluvies in the stomach; is very proper in all chronic diseases, in which there is any irregular fermentation of the fluids, as the gout; hence it is observed, *rarissimum exemplum ut quis hydropota fiat arthriticus*. By water-drinking the humors are cooled, diluted, and made more mild and less acrimonious. Water-drinking is good for all defluctions, which depend on the ephemora, as head-achs, hysterics, epilepsy, tremblings, dimness of sight, melancholy, bilious complaints, hæmorrhages, fluxes of humors by stool, urine, or womb, cachexies, burning fevers, asthma, consumption, &c. It is an immediate cordial, as we see by its effects, upon persons fainting,

fainting, and prevents the putrescency of the blood. It is the only simple fluid fitting, and qualified to answer all the ends of drink. It was the primitive original beverage, and happy had it been for the whole race of mankind, if other mixed and artificial liquors had never been invented. A little syrup, liquorice, or the juice of some fruit, with a little vinegar or lemon juice, should always be mixed with the water we drink at meals, to make it somewhat glutinous, that it may mix properly with our food, and not pass off too soon. Malt liquor, fresh, light, well hopp'd, not too strong, and of a proper age, is a very good diluter; and porter in summer, in small quantities, strengthens and refreshes; to hard working people it is a wholesome liquor, to others it is heavy and unwholesome, except it be taken in great moderation, and that chiefly in summer. Wine is an unwholesome and unnatural drink for the inhabitants of this country, not to mention that pernicious mixture too commonly sold in place of wine. If the stomach be weak and cold, the constitution languid, weak, cold, and relaxed, and the blood poor and watery, then a glass or two of wine will be of service; but people in health require no wine; it ought only to be used as spices are. Two ounces of food well digested will give a greater supply of more useful and durable spirits than ten times as much wine, which luxury only makes necessary. A good appetite never wants wine to give spirits, which are too volatile and fugitive for the useful purposes of life. Wine was never designed for common use. In warm countries it is very necessary, nor can health be preserved without it. For the heat of the weather exhausts the strength, weakens the inside, and hurts digestion; therefore we see providence has provided for their wants by giving

plenty of grapes, which are the produce of warm climates only. A glass of wine occasionally taken in summer, is more beneficial than in winter. I do not condemn a glass of wine or two, when a person is in health, and has dined upon plain meat, if he is ashamed to be unfashionable, though I think it does little service, but when there is any heat in the blood, and in all consumptive, asthmatic, gouty, and scorbutic habits, it should never be touched except as a medicine. In all low nervous, paralytic, dropical cases, a few glasses of wine are necessary, and a glass occasionally between meals. Wine is taken with a view to promote digestion, and assist the operation of the stomach, but it manifestly does harm to both; instead of digesting and dissolving, it hardens, and prevents dissolution, curdles and corrupts the milky chyle: it warms indeed and stimulates the stomach to greater exertion than is natural or necessary, and thereby enables it to discharge its contents the sooner, and gives that transient feeling of warmth and comfort from its immediate action: but by this extraordinary action it forces our food out of the stomach too soon, before it is softened, dissolved, and properly prepared, and sends it into the bowels crude, hard, and austere, and in that state to be carried into the blood, there to produce diseases. Wine would be an exceeding good cordial, did we not destroy its virtues by daily use. There is neither medicine nor cordial, when taken every day, that will continue to preserve their good effects upon the body. Great care should be taken in laying aside the use of wine; it cannot with safety be done all at once; nature cannot bear such shocks without hurt; and when an habitual course has led us into one extreme, the worst of consequences are to be apprehended from our running precipitately into another.

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We ought first to add a little water to our wine, or exchange our Port for some light French wine; the quantity we should next diminish, till we at last substitute water in place of wine. I am not such a churl as to say, that one should never swallow a drop of wine; I apprehend a glass or two occasionally cannot hurt any healthy constitution. A gouty person should not drink a glass of wine when he has symptoms of an approaching gout; nor an asthmatic, when he is panting for breath.

Of all other things, drams are deceitful and pernicious to the last degree: they destroy the memory, impair the judgment, dry up the juices, scorch and shrivel the solids, enflame the blood into gout, stone, gravel, fevers, rheumatism, pleurisy, apoplexy, &c. they contract, corrode, and destroy the coats of the stomach; and so weaken the appetite, that it hardly retains power to digest the smallest quantity of food: hence crudities, nausea, vomiting, tremors, lowness, bilious vomitings, purgings, wind, frequent belchings, &c. To women drinking is most hurtful and unbecoming, because their constitutions are weaker and more relaxed, and a greater degree of delicacy is expected from them. A woman that takes to drinking seldom leaves it off, because she drinks from a love and passion to the liquor. Company, dissipation, frolic, or idleness, often induce a man to drink, when he has no liking to the liquor. Much may be said in excuse for a woman that drinks. The great pain, faintness, lowness and depression of spirits, to which they are often subjected about the time of the monthly purgations, make them fly to cordials to revive their spirits in those sinking fits, when they can hardly support life. The habit grows upon them. *Nemo repente fuit turpissimus*; No body becomes extremely bad all at once. They begin with a

small quantity, which they gradually increase; from weaker liquors they fly to stronger, till at last they can find nothing strong enough. People that have any regard for their health or lives ought to tremble at the first cravings for such poisonous liquors. A little lowness of spirits requires drops which pass readily down under the notion of physic; drops beget drams, and drams beget more drams, till they come to be without either weight or measure; so that at last the miserable sufferer undergoes a real martyrdom between natural modesty, the necessity of concealing so strong cravings, and the still greater one of getting them satisfied some how, as the vice then is too powerful to be brought into subjection. Did this bewitching poison actually cure and relieve them from time to time, something might be said in excuse for such a course of folly, madness, and vice; but, on the contrary, it heightens and enrages all their symptoms and sufferings ever after, except a few moments after swallowing it down. Every dram creates a necessity for two more to cure the bad effects of the first, and one moment's indulgence is purchased with many hours of great pain and misery, besides making the malady incurable. What a horrid situation it is not to be able to endure one's existence except in a state of intoxication! Running into dram-drinking is giving up every thing at once, for arsenic will not kill more certainly, though more quickly. It also exposes to shame, ignominy, and contempt here, and the express words of scripture are, "The drunkard shall not inherit the kingdom of heaven." The poor deluded wretches who fall victims to dram-drinking, do not consider that this violent stimulus to rouse their nerves and fibres to a little sensibility, by being repeated, makes them become more callous and insensible, for debility disposes to irritability

bility and rigid inflation. In nervous and putrid fevers we often meet with a complication of irritability and great prostration of strength. The same thing too, when frequently repeated, must not only be increased but exalted in quality to produce the effects they wish for ; so that at length they know not where to stop ; rectified spirit of wine and fiery distilled oils become too weak. Women often take to drinking from the cruelty of their husbands. By constitution their spirits are weak and tender, their sentiments delicate, their sensations quick, naturally steady in their love and friendship. When they find that the man, to whom they had become voluntary slaves, and had surrendered their all, treats them with cruelty, disrespect, unfaithfulness, or indifference, the terrible disappointment strikes them, like a thunderbolt, with horror, grief, and despair. Their misery admits of no remedy, no mitigation, no termination, except in the grave. Their wretchedness overwhelms them with horror, and sinks their spirits to the lowest ebb. Grief and vexation occasion indigestion, acrid, sour vomitings, and much phlegm, and by affecting the spirits, weaken the stomach, and render the whole body lifeless and inanimate. To dispel the gloom that hangs over them, they fly to cordials and spirituous liquors, in order to supply by art what is wanting by nature ; and about the time the husband is expected home, they dry up their tears, and take something to revive their spirits, that at his arrival they may be able to put on some shew of cheerfulness, to recover, as they vainly hope, his love. Thus the poor unfortunate woman contracts a habit of drinking ; she is first neglected by her husband, who ought to be her comfort and protector, and is at last despised by all the world. Spirits are unnatural to the constitution, and neither taste nor inclination

inclination would direct to the use of them. Even the poorest people do not at first drink from any liking or desire to it, but being cold, wet, or faint with hunger or fatigue, they find an immediate comfort and refreshment from the use of spirits; and as they can purchase a glass of spirits with less money than they can cover their backs with decent cloaths, or fill their bellies with wholesome food, they gratify the strongest and least expensive appetite, and so insensibly become drunkards.

Too much sleep, and lying too long in bed, are very prejudicial to a weak constitution, and even injurious to the strong: it relaxes the nerves and fibres, weakens the motion of the muscles, and brings on a lassitude, languid stupidity and indolency, which pursue the person through the whole day; he has not that sprightliness, life and vivacity, which accompany early rising. No person should lie in bed above five or six hours in summer, and seven in winter. But the most destructive practice of all is that of sitting up a great part of the night, and lying in bed the best, pleasantest, and healthiest part of the day. This practice, accompanied even with the greatest regularity, will in time injure the best constitution, and what effects must it have upon the weak and delicate? It is a practice very destructive to the health, and shortens the life of every one that pursues it. It occasions heats, hectic fevers, coughs and consumptions in young people, and variety of complaints in those who are more advanced in years. The great and all-wise Author of nature has ordered the day for labour, and the night for rest, has formed all nature agreeable to this plan, and designed that all things should conform to these laws, and whoever transgresses them runs counter to the primary and secondary laws of nature; and our bodies are so formed, that

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we cannot transgress this grand law without suffering by the transgression. The sun is the soul of the creation ; it gives life, warmth, growth and generous comfort, to all. As soon as he quits our hemisphere, the earth is divested of his energetic qualities and enlivening rays, our bodies become more relaxed, and the voluntary muscles lose much of their tensity, the involuntary muscles retaining their usual force, fill the minute vessels more copiously ; perspiration, and all the other secretions, will be increased, the body will be nourished, and the animal spirits invigorated and restored. In sleep the body feeds most, and a proper quantity of sleep is absolutely necessary for the nourishment of the body. If the sleep be too short, it makes the body then weak and unhealthy, and injures the vital powers, by depriving them of a due degree of nourishment. Too much sleep puffs up the body, makes it bloated, weak, and full of unhealthy juices. At night the atmosphere becomes damp and gloomy, the plants close their tender flowers ; the brute creation go to rest, and man only, rebellious man, dares transgress the laws of nature at his own peril. But if we act agreeable to the dictates of nature, and appropriate the night for rest, we should then preserve our bodies in health, our blood pure, our secretions regular, our spirits lively, and our bodies vigorous. But if we invert the order of nature, by converting night into day, and day into night, we offer violence to our nature, and disturb and injure the whole animal œconomy. There is no temptation, either constitutional or acquired, that can be pleaded in favour of the gross transgression of the dictates of nature with regard to the hours of rest and exercise, and it must be a great violence done to the feeling of every one before he is able to bring himself into a habit of any great transgression

of those hours. Habit indeed makes the most unnatural things desirable, and nothing can be more so than to be asleep when all nature is awake. It is prudent, however, for those whose business does not oblige them to the contrary, never to rise and go abroad before the sun, especially in very hot countries, that the moist vapours may be dispersed, and the cold air warmed and animated by its genial influence. It is also unhealthy to be abroad after the sun is gone down, when the air, by the falling of the dew, begins to get foggy. In damp, wet weather, in all seasons of the year, a fire is proper, and at no time more so than in the morning in winter.

Next to temperance, exercise is the greatest promoter of health. The industrious labourer, who is obliged to earn his bread with the sweat of his brow, enjoys the greatest share of health. He devours with eager appetite his scanty meal, which his active body, by healthy exercise, soon digests, till the return of night calls him home to sweet repose. Health makes his bed easy, his sleep refreshing, and he renews his strength with the rising sun. Health blooms in his countenance, and manly vigour fills every nerve. He knows no want, and has no care. His numerous offspring enjoy the same inheritance, health of body and peace of mind. Not so the idle and inactive; they have days of pain and nights of sorrow. The sentence of condemnation pronounced upon man at his fall by his Creator was, that man should labour, and live by the sweat of his brow; therefore Providence intended that all mankind should labour; indolence is contrary to the design of Providence, and the designs of Providence being always well calculated for our real good, both here and hereafter, indolence certainly is an error that must proportionably hurt us here and hereafter. Our hands and feet

feet were given us for exercise, and if we do not make that use of them, we must suffer by the neglect. That idleness exposes one to temptations, and is the cause of much immorality, daily experience presents us with too many examples to leave any doubt of the truth of it. It is likewise as certain, that indolence and inactivity form obstructions in the body, especially in the finer vessels, upon which the health and vigour of both body and mind depend, and lay the foundation of many diseases. Health cannot be preserved without exercise by the best regimen and medicines in the world. Nothing we can possibly swallow, either by way of food or medicine, can supply the place of exercise, and without it there neither is nor can be any such thing as a lasting cure. Sydenham says, nothing so effectually prevents the indigestion of the humours, and consequently strengthens the fluids and solids, as exercise; but unless it be used daily, it will do no service. The generation of chalky concretions, he says, is prevented by daily and long continued exercise, and it also dissolves old and indurated concretions, provided they are not arrived at such a degree as to change the external skin into their substance.

When we consider wherein health consists, we soon discover the necessity of exercise to preserve and restore it. In health the stomach receives from time to time a proper supply of food, which it digests and sends into the body, like wave succeeding wave, where it circulates by its own spontaneous motion and the influence of the nerves, to nourish the body, and to pass off in order to make room for fresh supplies. This progressive motion, as I have already explained, prevents the fluids from putrefaction, and this tendency to that state forwards the circulation, and is the cause of the food being converted into nourishment.

ment. To answer these salutary, and indeed necessary purposes of life, the joint force of all the solids, or nervous influence by means of the solids, is indispensibly required. In a state of indolence, the vapour, excrementitious or redundant parts of the fluids, do not pass off so soon in a due proportion, or so regular as they ought, because there is not heat, motion, and activity enough. They lodge in the body too long, follow their own nature, and become putrid; the homogeneous parts have time to collect together, and form ill-conditioned obstructions, wind, gas or vapour, is detached from the blood, and the whole mass of fluids is improperly assimilated. In jails, where putrefaction from inactivity comes to the greatest height, we observe malignant and pestilential fevers arising from the putrescency of the blood, and the noxious vapour which they receive from one another. The humours passing off slowly, and not in sufficient quantity, make no room for fresh supplies, therefore the desire to eat must be very inconsiderable, and get daily worse; and as people will eat whether they have an appetite or not, there will be a plethora, and all the evils arising from it. Purging, bleeding, blistering, vomiting, diuretics, diaphoretics, issues, cupping, &c. will give temporary relief, but can never make a lasting cure without exercise, seeing it was the intention of Providence in so forming our bodies to create a necessity for exercise. There is no bearing the moping languor, depression of spirits, and loss of appetite, which indolence occasions; therefore we fly to drinking to raise the spirits, and to luxurious eating and high seasoning to whip and spur on our jaded appetites; but art and luxury can never produce that sprightly vigour, that alacrity and flow of spirits, that relish and desire for food, and that refreshment after it, which exercise and activity procure.

procure. The tone and vigour of the moving powers are wonderfully increased by exercise, the nervous energy becomes greater, and the circulation of the blood is accelerated, The greater impetus of the blood through the whole system effectually causes a determination to the surface, and a free perspiration is produced. By exercise too sleep is procured, the appetite increased, the tone of the stomach preserved, and the digestion admirably promoted; the blood is determined from the internal viscera, which prevents as well as removes obstruction, and powerfully obviates the plethoric fullness of the system. Exercise enlivens the body, refreshes the spirits, and clears the head. And an undoubted fact it is, that from the neglect of exercise, the tone and strength of the whole machine is destroyed, and a morbid irritability is induced, with all the unhappy train of symptoms which accompany chronic weakness. The tone of the stomach and bowels is particularly injured, the appetite is impaired, and a proper secretion of bile and other digestive fluids is impeded, the solids become weak and relaxed, the whole animal œconomy is disordered, and a train of nervous and hypochondriacal symptoms, scurvy, gout, and many other complaints, which the sedentary lovers know and feel, come on, as a necessary effect from a cause. Hippocrates says, exercise gives strength to the body and vigour to the mind.

Indolence, like other habits, is easily acquired, but it is a difficult task to get the better of it. Custom strengthens every habit, and a person may stay at home till he has neither resolution nor courage to go abroad. He resolves from time to time to go out, and as often as the times come he is afraid, and finds some excuse to avoid it. Every person therefore ought to lay himself under a necessity to walk or ride so far every day. Hunting, pasturage,

pasturage, and agriculture, employ perhaps fewer people in the present age, proportionably to the inhabitants of civilized nations, than in former days, when men were less occupied in various commercial and literary pursuits. Manly athletic exercises are much less in vogue, because they are ill suited to the softness and effeminacy of modern times. If much study be joined to the want of exercise, it becomes then doubly prejudicial to health, and will, if long pursued, ruin any constitution: it never fails to destroy the appetite, and produce all the symptoms already enumerated, with head-achs, vertigo's, costiveness, wind, crudities, apoplexy, palsy, &c. Dr. Cheyne says, to make labour and exercise as useful as may be, two cautions are necessary; first, that they be not too violent; secondly, that moderation in eating and drinking accompany them. Violent exercise, which either heats the body, or hurries and fatigues the spirits, is hurtful, and will destroy a young person much sooner than if he used no exercise at all. There are many more young people who have tender and delicate constitutions destroyed by the former, than those that are injured by the latter. Many complaints require rest and composure, as the asthma; others very moderate, as consumptions, great nervous relaxation, where the body is very sensible of any irritation, all inflammatory complaints, &c. In all these cases much exercise excites an unnatural heat, increases the vitiated qualities of the blood, greatly disturbs the different secretions and excretions, and exaggerates every symptom of the complaint. Those who among us happily live under the necessity of acquiring by their bodily labour the common necessaries of life, and who consequently stand the fairest chance of enjoying the greatest health, are very liable for the lucre of gain, to pursue business beyond their strength,

strength, and rashly, in a short time, to injure their constitutions. Exercise therefore should be gentle and moderate, and, if possible, in the open air, which is more reviving than any cordial.

Of all those things that tend to support animal life, air is the most constantly and indispensably necessary. It is a fluid, as I formerly observed, not only always in contact with the whole surface of our bodies, and absorbed by the cuticular pores, but is also continually entering into our lungs, and constituting an ingredient in every part of our composition. Our food, drink, and whatever else we make use of, are only necessary for us at some particular times, but the air is necessary for us every moment. It is air, says Hippocrates, which supports life, and directs the progress of diseases. It becomes natural for us to look upon a pure air as one of the greatest sources of health, and an impure one as one of the greatest sources of diseases, and to attribute to its various changes from hot to cold, from moist to dry, and to the various particles which are continually floating in it, many of those disorders whose origin we cannot otherwise account for. Wherever great numbers of people are crowded into one place, the air is unwholesome. In great cities many things tend to pollute and contaminate the air, which is not only repeatedly sucked in by a number of people, with all kind of diseases, one after another, but is likewise loaded with smok, and the exhalations continually arising from innumerable putrid substances, dunghills, slaughter-houses, the putrid effluvia or perspiration of the inhabitants, the sick of every disease sending more or less of their infectious matter into the air, of which every individual has his share. If fresh air be necessary for the healthy, it is much more so for the sick; therefore a moderate

moderate distance from town is the most desirable place for exercise.

When the weather is uncertain, disorders are judged of with difficulty, and are likewise as uncertain as the weather. If the air be alternately warm and cold in the same day, we may expect autumnal diseases. The stomach and bowels have naturally a greater degree of heat in winter and spring, and the circulating fluid has less a tendency to crowd upon the internal viscera when extreme cold does not corrugate the skin, and obstruct perspiration. When the primæ viæ are oppressed with any redundancy of humours, and an additional degree of relative heat and force by artificial fire, I mean wine, spirituous liquors, and spices, nature throws the load upon the exterior organs of the body in the cellular membranes. These frequent changes in the circulation of the animal fluids, when often repeated, must weaken the powers in the various organs. In the vernal season of the year nature then unfolds her powers by means of the invigorating warmth and rarefaction of the circumambient atmosphere; in autumn her powers are more restrained. Now as the autumnal influence of the air in our variable and uncertain climate tends to restrain the action of the external organs, it must necessarily throw a redundancy upon the internal organs, and these frequent vicissitudes of the direction of the flux of humours are the predisposing causes of periodical complaints, as asthma, ague, gout, &c. derived from our variable climate. No wonder then if warm climates, by extending the action of the exterior organs, should afford relief to such as are troubled with low spirits, &c. Travelling to the South of France or Italy will often give such people a new degree of happy existence. The calm serene atmosphere of
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the South produces the happy effects of a never-ending spring, and enables nature to expand her powers. Cold constricts and restrains the action of the external organs, consequently a smaller quantity of matter is thrown off by perspiration, and a greater quantity of fluids are lodged upon the internal viscera, which become loaded and obstructed by the quantity of matter which should be thrown off by the skin. When the weather is not only cold but damp, a still greater quantity of superfluous fluid is retained in the body. Weak and delicate people in particular, whose constitutions are relaxed, should be as much in the air as possible, and at the same time use gentle but regular exercise; but the air should not be too hot, damp, or excessively cold. Stewing in hot rooms and warm air, which has lost its vivifying energy, relaxes the nerves and fibres, and gives a loose texture to the blood. Nastiness is a great enemy to health, and promoter of diseases, particularly of the putrid kind. It is every body's duty to pay proper attention to the cleanliness of his person and house, not only upon his own account, but for the public good.

Whatever agitates the mind hinders digestion, and disorders the body. It is not intemperance, luxury, and indolence only, that give rise to diseases; the passions of the mind, as anger, envy, discontent, sorrow, fear, &c. will debilitate the constitution, and have very destructive effects upon the body. In youth the passions of the mind are less agitated by those unavoidable tumults, which more advanced age experience; the nerves are calm and undisturbed, and the animal œconomy regularly performs her several functions. Accordingly we see health is, generally speaking, the lot of youth. The passions first destroy the appetite, and, if the stomach be full, occasion vomiting

vomiting or purging; accelerate the contraction and dilatation of the heart, in consequence of which the circulation becomes irregular; the heart flutters, palpitates, and is at times so inflated, as to be ready to burst; the animal spirits tumultuously hurry through the body, and are very irregularly distributed; the fibres are variously agitated by inflation and spasm, till at last they become hard, stiff, callous, insensible and paralytic, the assimilation and secretion of the blood are very irregular; and the circulation tempestuously crowding in a very disorderly manner, chokes up the vessels in different parts of the body, while the other vessels, being deprived of their due quantity of blood and animal spirits, collapse, and become palsical. Hence quantities of pale water, sudden bursts of unmeaning tears, great heat and thirst, a flowing of water into the mouth, and many other nervous and hysterical affections, fits, syncope, epilepsy, palsy, frenzy, hypochondriacal melancholy, and a variety of other diseases which in the days of superstition were supposed to arise from forcery, or the immediate possession of the devil; all which indicate the greatest tumults and perturbation in the inmost recesses of the nervous and vital frame. We observe how instantaneously the milk in the mammæ is changed by a sudden fright. Modesty or shame produces an immediate flushing, or colour and heat into the face. Fear again throws the whole frame into a colourless rigour, and spreads a languor over all the motions of the fluids. Great fear will occasion vomiting, purging, dangerous costiveness, trembling, chilliness, and temporary insanity. Joy fills the whole machinery with an instantaneous lightness and vivacity in all its motions. Anger ruffles and disorders the body, distorts the countenance, hurries the circulation of the blood, affects the secretions, excretions,

excretions, and the whole vital functions ; in hot sanguine constitutions it often occasions fevers and other acute diseases, and sometimes sudden death. In cold, phlegmatic, or lethargic constitutions, anger may rouse the indolent principle of life to a more vigorous action, and thereby do good ; but in gouty, rheumatic, hot, bilious and maniacal constitutions, it has a contrary effect. Resentment occasions very obstinate chronical complaints. Anger and fear being of a violent nature, are seldom of long duration ; but grief long continued terminates in a fixed melancholy, which preys upon the spirits, and wastes the constitution. Some take to drinking to recover their spirits, and to lull their grief to rest ; but the cure proves worse than the disease, and generally ends in the ruin of the constitution, character, and life. Grief does not at first so visibly and violently affect the constitution as anger or fear, but many little strokes often repeated will in time do the same thing that a great blow does at once. When the heart is sad the body is not properly nourished, nor the food converted into healthy chyle and blood, the animal spirits are irregularly supplied, and become irregular in their influence ; the person becomes weak spirited, peevish, irresolute, capricious, the disposition seems not to be under the direction of the mind, and the passions become irregular ; at one time he is compassionate, and every moving story melts his very soul into tenderness ; at other times he feels no sympathy for the distresses of others ; sleep does not refresh, and is often interrupted by dreams ; the vital warmth is diminished ; the body becomes pale, lean, and benumbed into a kind of palsy, and the sensations lulled asleep : schirrous concretions will be formed in the spleen, liver, glands of the mesentery, &c. and the whole œconomy being disordered, various

diseases arise, according to the nature of the constitution. Lascivious passions waste and consume the body, which suffers in a state of health, and much more in illness. There is nothing that relaxes the constitution, and weakens the whole animal œconomy to so great a degree as excessive venery; and certainly there are as many young persons whose constitutions are destroyed by this means, and by long courses of mercurial medicines, which are frequently the consequence of it, as by any other excess which they fall into. The most elastic fibres and strongest muscles are hereby relaxed and weakened, and a foundation is laid for the gout, which may in such a situation be agreeable before many other chronical complaints. Ideal venery is a very pernicious thing.

If most chronical complaints are brought on by intemperance, indolence and passion, we must remove the causes, that the effects may cease. We cannot desire the feeble or cripple, who cannot stand, to take up his bed and walk; the man that has lost his appetite to abstain from food; and when the spirits are oppressed with sorrow, disappointment and despair, who can desire the patient to enjoy peace of mind? In these cases, when the disorder has arrived at that height, the assistance of medicine must be called in, by whose aid, and the co-operation of other artificial means, the patient may proceed from strength to strength, till at last he obtains perfect health.

When the stomach is foul, and a sickness, nausea, sour belching, vomiting, head-ach, &c. a gentle emetic or cathartic will be of use. Vomits are of great service in removing the bad effects of intemperance, before it advances too far. They clear the primæ viæ of various kinds of crudities, of noxious and putrid matters, promote the secretions, put the stagnating fluids in motion, and

and thereby prevent morbid congestions and accumulations; the secretion of the mucus from the lungs is promoted, the general absorption of the system is increased, the circulation is rendered freer, the blood is more equally diffused over the system, topical determinations are lessened or removed, the circulation is restored to the surface, the nervous system is roused to a regular and uniform action, and part of the emetic passes sometimes out of the stomach into the bowels. Purgatives evacuate the contents of the first passages, when they become hurtful to the containing parts from their accumulated quantity, or from an acquired acrimony, in consequence of having proceeded too far in the latter stages of fermentation. The secretion of the exhalant arteries, mucous glands, bile, gastric fluid, and pancreatic juice, is greatly increased, and a considerable evacuation, especially of the serous kind, is obtained. Hence the utility of such remedies in cases of abdominal congestion, of fulness of the system, or of topical determinations of the blood, where such an evacuation may be required; and as the alimentary canal is first affected in almost every complaint, these are exceedingly useful, and if given in time, will prove of great service, not only in the prevention, but cure of diseases; but they are, as every other medicine is, unnatural to the constitution, and when often repeated, induce a state of debility, and operate slowly, by destroying the tone of the alimentary canal, hurt the appetite, produce flatulency, indigestion, acidity, spasmodic pains of the stomach or bowels, and when they are discontinued, obstinate costiveness very often follows; for the constitution, and particularly the alimentary canal, being accustomed to the unnatural stimulus of aloes, or some other laxative medicine, and being insensibly so much weakened, is at last

unable without it to perform the functions of nature, and thereby hasten those very evils they are intended to remove. They give temporary relief, and are also necessary to clear the body of its morbid contents, and to prepare it for other medicines, if the complaint has been of so long standing as to have passed from the stomach and bowels, and to have entered the constitution; but if it is in its infancy, and is confined to the first passages, an emetic or cathartic to be repeated, if occasion requires, till the cause is removed, will, for the most part, answer every purpose of restoring the patient to health, if a proper tonic or strengthening medicine is given immediately after to restore the digestive powers, and brace up the relaxed solids. But if the patient neglect to pay proper regard to diet and exercise, those most important and essential means of preserving health, purges and emetics will stand him in little stead but to increase the symptoms, hasten his danger, weaken and impoverish the whole constitution.

In all diseases from weakness of the stomach and bowels, general relaxation, languor, obstruction of the menses, fluor albus or flooding, from weakness, head-achs, lowness of spirits, and every symptom arising from a disease of the alimentary canal, and where a cordial strengthening medicine is indicated, I find none answer so well as the tonic tincture which I have discovered. An emetic or cathartic, as symptoms direct, should always precede the use of it. It may be given three times a day, from fifteen drops to two tea-spoonfuls. The other cases where it is indicated will be mentioned in the succeeding part of this book. I shall now proceed to examine each particular disease, and point out the method of cure adapted to each.

C H A P. IV.

Of nervous Diseases; Epilepsy, Apoplexy, Frenzy, Palsy. Nervous, intermittent, remittent, and continued Fevers.

ALL diseases may be called nervous, because the nerves have a great concern, and bear a part in every disease, by being either remitted or accelerated in their motion and influence. In inflammatory complaints the nervous circulation and influence are accelerated, therefore we may call them accelerated or inflammatory nervous diseases. But we generally call those diseases nervous, where the nervous circulation is remitted, impeded, or obstructed, which occasions relaxation, languor, lowness and depression of the spirits. Debility then, which disposes to irritability, lays the foundation for nervous diseases. In confirmation of this we may observe, that nervous diseases begin with the most manifest symptoms of debility, such as languor, lassitude, low and depressed pulse, dejection of spirits, flatulency and indigestion, all of which are evident effects of a sedative cause. The reason nervous diseases are so difficultly cured, is from an inattention to them at first, while they are confined to the alimentary canal, and may be easily removed. When the relaxation reaches the finer secretions, medicines in general are not penetrating enough to reach so far as to remove the cause of the complaint. The nervous fluid is secreted from the blood, and was in its primitive state in form of chyle in the stomach; and as the nature and specific qualities of the intestinal fluids depend upon the fermentative motion and circulation of that

fluid, and the organization of the exhaling arteries, which in their continuation constitute the beginning of the excretory ducts of the glands; when the solids are relaxed, the secretions must be imperfectly performed.

By the action of the heart and the sides of the canals, the heterogeneous parts of the blood are so blended as to prevent the homogeneous or similar parts from associating or combining, as they are apt to do, which would prevent their so readily yielding to the animal mutations; instead of that, they are disposed to that common elaboration and influence upon each other's different qualities, which renders the whole mass fit for, and most susceptible of the various changes and secretions it is intended to undergo in its course. The heart too, by its concussions, has a direct effect forward upon the system of the solids, in which the fluids, agitated by the heart, move. It not only causes a passive expansion in the arteries, but every shock of the heart excites a reciprocal orgasmus, or active tension, through the whole series of solids, which keeps them always prepared for admitting and acting upon the fluids every where. The contractions of the heart also momentarily irritate and rouse that vital principle animating every fluid particle.

The brain is a glandular substance, which gives rise to the nerves, and secretes from the most volatilized parts of the blood a vivifying principle or fluid, which by its perpetual efflux constantly streaming off from the nerves, animates every particle and fibre by its energy, and has a powerful influence on the circulation of the animal fluids through the substance of the brain, both as a director and as a moving power, and perpetuates and keeps up the circulation.

If we consider the generation of vegetable spirits, we may with more ease comprehend the generation and secretion of the animal spirits or nervous fluid. When vegetable substances are fermented, a spirit may be distilled from them, but if the fermentation has not had time to be perfected, an oil is distilled. By fermentation the fire contained in all bodies being detached from the more heavy earthy parts, is mixed or united with the most volatile particles of the oil and acid, which gives the elasticity and briskness of motion to the spirits of fermented liquors; their inflammability is from the oil, and their sharp pungency from the volatile acid. This volatile oil and acid, when they float in the air, resemble the resinous particles of aromatic substances, and when confined in a mucilage or bubble of water, they may be called the spirit of that liquor. Those volatile hot particles, like common fire, rarify the air in the bubbles, and make it more spirituous and elastic. The oil and spirit being variously secreted in different vegetables, after fermentation and distillation, retain their different natures, and distinguish these several spirits by giving different degrees of rarefaction to the air included in the bubbles. The spirits of the animal fluids are first produced or formed, or, to speak more properly, are first denudated and disentangled of the more earthy particles in the stomach. When the meat is dissolved by fermentation or agitation of its aerial particles, the oily parts, which give the fœtor, and the volatile acid, which smells sharp or sour, being mixed with the fiery elastic particles, constitute the animal spirits. The frothiness of the contents of the stomach discovers the oily viscosity of the chyle, which is very necessary as a vehicle for the animal spirits. If too much slime abound in the chyle, which happens in the asthma, the most

rarified particles of the meat are too closely shut up and retained, which creates a windy liquor, such as new wine or beer undepurated, from its slime and windiness. There is, as I observed in a former chapter, a large quantity of volatile effluvia or smoak, which is always endeavouring to expand itself. If the blood was not mixed, and these effluvia kept equally dispersed among the other parts, portions of it would be apt to collect into an elastic mass by itself, and very suddenly coagulate, or otherwise stop the course of the rest of the blood. A stoppage of this kind would burst some of the vessels of the brain, occasion an extravasation of the blood, and stop all vital motion at once. It sometimes bursts the heart contracting upon it, and occasions instant death. When it is kept continually mixed with the whole mass of blood, by the regular and reciprocal action of the solids and fluids, and in this manner has gone through several circulations, it is combined in the red particles of the blood, and becomes highly volatilized and animal.

In the chyle, the spirits are like new beer, crude and unflammable; but in the blood they are more depurated by the secretion of slimy matter. The red blood serves to forward the digestion and assimilation of the fresh chyle, to dissolve, mix, and animalize the more viscid and less concocted, and to promote the circulation. If the red blood, or the interstices between its particles, contain much of this flatus unassimilated, it is liable to great fermentations, which occasion fevers and defluxions, by forcing the volatile effluvia, which ought naturally to pass off by the skin and breath, through the glands, carrying with it too great a defluxion of serum upon the glands. The red, or most volatilized parts of the blood, are still farther exalted and animalized by the action of the brain, which

which secretes from it a most wonderful spirit, whose influence and powers in the animal œconomy are equally astonishing. This active vivifying principle, called the nervous fluid, exists in every point of the animal system, and disseminates its universal vitality in the irradiations of sensations, affections, volitions, &c. of every kind, which are only copies, transmitted to our faculties of perception, of the instantaneous activity of this principle residing in the solids and fluids, which compose every organ of sense, in receiving and variously modulating itself to every impression that the course of nature without us can possibly make upon these organs.

The brain, by the mediation of the nerves, penetrates and pervades the whole human frame, sheds its influence to the inmost and most intricate recesses, animates every point of our frame and particle of our composition, and by constantly acting in the same direction with those in which the animal fluids move, effectually promotes their progress, and gives a facility and momentum to the universal circulation; while the heart, by its reiterated impressions and shocks on both the solids and the fluids of our system, gives an additional vigour to the animation and disposition of the whole, causes those perpetual colutions which irritate and invigorate the living flame, which oscillates in every solid fibre, and fans the fire of nature in every fluid particle, and by a special regulation and direction of the nervous influence, disposes our fluids to be conveyed into those channels which nature has appointed for their reception. It is the brain and nervous system that do all; the other fluids and vascular system are no more than materials duly qualified to be acted upon, and as a subordinate arrangement seconding their action, and channels for the nervous fluid to move in. In short,
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every part is subservient to another, and all together make one complete whole, which constitutes animal life, and is only another name for self-activity.

That the nerves shed their influence universally and intimately to every part and recess of our substance, is, I think, what no one doubts. Nothing can be more certain and undoubted, than that the emotions and passions of the mind have not only a most powerful, but in many instances a most instantaneous and sensible effect upon the motions of our fluids. This may be observed and demonstrated in a variety of examples.

How the mind acts upon matter by the mediation of the nerves, will no doubt for ever remain a secret. Here we must stop our researches, as no human being can pass this boundary; where matter ends we must desist, (for our conceptions can reach no higher) and declare, “That
“wonderful are the works of the Lord, and his ways
“past finding out.”

The nervous fluid, no doubt, has a continuity of parts almost from its recreation in the brain, along each nerve, to the ultimate point of its direction, which makes the action and re-action of its particles so incomprehensibly rapid, that they instantaneously convey sensation to the common repository of the brain.

That the spirit of vegetable matters is very volatile and elastic, appears from its forcing their vessels in high fermentation in bottled liquors. The changes of the weather make vegetable liquors clear or turbid, and set them to fermentation again. Upon the changes of the air wines ferment. The same changes may be observed in the animal humours upon changes of the weather and seasons, which shews the similitude of their aerial particles, which keep the same expansion and pressure as the air itself has.

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In a dry clear air, when there are no fumes or vapours to weaken its pressure, the mercury stands high in the barometer, and the spirits are lively. In moist foggy air, or easterly winds, which bring moist vapours, the spirits are oppressed, because the pressure of the air is weakened by the exhalations; but rain, when it falls, does not much affect the spirits. Very hot weather, great fires, crowds of people, close rooms and damp houses, weaken the pressure of the air, and are very prejudicial. In extreme cold weather, and before a fall of snow, the spirits are restless and uneasy, the skin is shrivelled and perspiration obstructed, which occasion defluxions upon the bowels, stomach, lungs, and brain; the patient is distressed with flying rheumatic pains, the head feels heavy with a numbed pain, the spirits are oppressed, respiration is lengthened, the stomach seems full and maukish, and griping pains in the bowels sometimes give two or three stools.

As the animal spirits, though so astonishingly subtile, are still matter, which pre-existed in different states in the food, chyle, and blood, they must partake of the same good or bad qualities, which exist in the chyle and blood. If they are too much rarified, they must act with a more rapid violence upon both solids and fluids, and thereby increase the heat; if they are too viscid, they act with languor. There is also required a certain disposition and state of preparation in the solids to admit of the reciprocal action of the nervous fluid. The fibres which form the containing vessels, must possess a sufficient degree of firmness or compactness to receive the quickening principle communicated by the nerves, and to diffuse it reciprocally amongst themselves, and to the contained fluids, which are intended or remitted in their motion, according to the structure of the organ on which the nerves exert their

their influence. If the coats of the vessels are weaker in one part than another, such part of course must have weaker action. If the vessels are over-distended beyond their natural dimensions, by too great a quantity of blood, as is the case in plethoric habits, an unnatural action in the solids and fluids will undoubtedly arise from this cause. The relative strength and consistence of the vessels in a state of health and sickness differ, therefore a variety of motions must be produced depending upon these circumstances.

A human fibre, like a chord of a musical instrument, requires a certain degree of tension to form that vibration necessary to produce an harmonious sound in the one, and the motion of the muscles, so necessary to health, in the other. When this chord is too much extended, or has too great a degree of tension, its musical sound will be weakened, and its vibrating motion impeded; and in the human body, when the nerves and fibres have too great a degree of tension, the muscular motion will be interrupted, and spasms and convulsions will be the consequence. When this unnatural tension, either of the chord, or of the nerves and fibres, is removed, both the one and the other will be found to have lost a great part of their elastic vibrating force, from the particles of which they are composed being forced too far out of their spheres of contact, which seldom can be restored to the degree it was before, especially if the tension has been long continued. Hence therefore, whatever gives the nerves and fibres of the human body too great a degree of tension, such as intense thought, great application to business, immoderate venery, sudden joy, inflammatory liquors, high feeding, violent exercise, or any thing which greatly irritates these nerves and fibres, and these in constitutions not very robust, will

will in the end greatly weaken their elasticity and vibrating force. Accordingly we see nervous diseases of long continuance are with difficulty removed, because the particles which form the solids, being forced out of their spheres of contact, and remaining long in that condition, are with much trouble restored to their natural state. Whenever there is a clog laid upon the chord of a musical instrument, its sound and vibrating force will be suspended, and if this clog is continued, there will be no possibility of restoring them again to the state they were in before. The same happens in the human body; when there is an oppressive weight laid upon the nerves and fibres, their elasticity will be greatly weakened, and the muscular motion retarded; and if this oppressive weight cannot be immediately removed, it is very rarely seen that they are ever brought again to their former degree of elasticity. This oppressive weight will be laid upon the nerves by sudden fear, too great fulness and extension of the vessels, the effects of intemperance and inactivity. Sudden extension and relaxation, the consequence of drinking spirits and spirituous liquors, and transports of ungoverned passions, especially where the nerves and fibres are very irritable, will greatly injure the elasticity and vibrating force of the nerves and fibres, and if long continued, will break down any constitution. These are the principal causes which weaken the elasticity and vibrating force of the nerves and fibres, decrease the velocity of the circulation, and consequently accumulate a redundancy of matter; but if a person in this situation crams himself with high-seasoned sauces, rich wines, or, which is still worse, with such a variety of these as will immediately occasion a strong fermentation in the stomach, weaken and impair its digestive powers, this accumulation will be
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so much the sooner made, and the already weakened vessels will be filled with active and acrid juices.

If we investigate the nature of most diseases, we shall find them proceed from the same causes, and receive their variety from the different constitutions and habits of body. Hippocrates says, that disorders would be found from a strict enquiry to have the same progress, and one similar cause, although they appear to be of different kinds, because they effect various parts of the body. In the cure of every disease we must endeavour to trace its original cause. The original cause of nervous diseases is indigestion and plethora, with a constitutional or acquired tendency to debility and irritability. The seat of the complaint was first confined to the alimentary canal, and by degrees the whole animal frame becomes debilitated.

As health consists in the due balance between the external and internal organs, and that nifus or tendency of the humors arising from their self-moving quality, and their direction by relative vacuums from the stomach to the skin, and other outlets of the body; if from grief, severe purging, intemperance in eating or drinking, or any other cause, the internal organs are weakened and their sensibility destroyed, then there will be very essential changes in the human body; a vicious sensibility, and a dangerous degree of irritation will be produced from the use of hard and solid aliments, where the powers of the internal organs are destroyed, and a certain unnatural tendency of the whole volume of fluids will be directed upon the internal relaxed organs, and the circulation will have a nifus to a retrograde, in place of a progressive motion. Then the internal organs will labour under a plethora, the patient will be loaded, oppressed, low-spirited, full of windy crudities, uneasiness, and all the

the train of nervous symptoms; the fluids are not duly assimilated, and the whole animal œconomy is out of order. Hippocrates says, *Corporis pars altera alteri, quum hinc vel illinc proruperit statim morbum facit.* A disease therefore may and does, oftener than is generally supposed, arise from no other cause originally than the connection and intimate harmony between the brain, stomach, abdomen, and whole expanse of the cellular membrane being destroyed, the equilibrium of health lost, and the animal powers improperly distributed. We find then, that should even the purest mass of humors circulate through the soundest vessels in any individual, thus circumstanced, he must certainly be ill.

When we take a view of the causes which produce nervous diseases, we shall be still farther convinced that they arise from debility brought on by a plethora of the internal viscera. Excess of eating or drinking, indolence, obstruction of the hemorrhoids, an irregular flow or suppression of the menses will occasion a plethora, but these causes are known to produce nervous diseases. People that are very studious are very subject to nervous complaints, for much meditation carries the action of the animal spirits from the stomach, which is upon that account less qualified to discharge its office in digesting and preparing the food, and the alimentary canal is loaded, oppressed, and relaxed. The injudicious use of mercury relaxes the solids, brings on a spasmodic constriction of the extremities, inverts the nîsus of the circulation from the skin to the internal viscera, which produces an inanition in the extremities, and a plethora in the larger vessels of the internal viscera and stubborn nervous symptoms. Fear and grief first affect the alimentary canal and produce vomiting or purging, and dangerous obstructions

structions in the abdominal viscera, and occasion such changes in the animal œconomy as are certainly capable of concentrating the whole mass of external fluids and producing most dangerous nervous diseases. A nervous disease arising from grief is the most difficult of all to be cured; another reason that may incline us to believe that nervous diseases arise from a redundancy of humors lodged upon the internal viscera, is their being particularly influenced by the changes of the weather. Mild warm weather gives the humors a direction to the outward parts, but cold damp rainy weather impedes the action of the external organs, a smaller quantity of matter is thrown off by perspiration, the internal viscera are loaded, and the seat of action and the nîsus or tendency of the humors are changed from the circumference of the body to the centre. The internal viscera labouring under this plethora endeavour, while they retain a tolerable share of elasticity, to unload themselves, by throwing the superfluity upon the cellular membrane and extreme parts, the action of the external parts is impeded, the exhaling vessels are obstructed and shrivelled up by the external cold, therefore nature finds no vent for it by perspiration, the consequence is, it either passes off by urine or stool, falls upon the lungs or lodges upon the joints. If at the same time this natural plethora is increased by luxury and idleness, and the humors inflamed by the intemperate use of hot liquors, venereal passions, spices and high sauces, the consequence is a severe fit of the gout or some other acute disease. When the matter is lodged upon the extremities, the pain, spasm and irritation of the parts give a tendency to the whole volume of fluids to the parts affected, and they are drove thither from the stomach and bowels, and the pain, wind, load, and oppression, which
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just before affected the stomach and bowels, are now translated to the extremities. It is this tendency of the whole current of the fluids falling upon the stomach, heart, head and lungs, that often occasions sudden death. When the cause is not so violent and the solids more relaxed and endowed with a morbid sensibility, it occasions that cold numbedness, oppression, languor, dejection of spirits, pains and confusion in the head, and many other symptoms well known to the nervous. There is at the same time a pre-disposing constitutional cause which also co-operates in forming a nervous disease. For a child may be born with weak nerves, and from original constitution liable to nervous diseases; others, who have been born with strong, healthy, and sound constitutions, may fall into a nervous disease from intemperance, acute diseases, violent fluxes, or any other cause that impairs the tone of the vessels, hurts digestion, and impedes the nifus of the circulation to the circumference.

With respect to epileptic and hysterical disorders they arise from a plethora and debility, which occasion a morbid mobility of habit. One part of the system may be too copiously supplied with blood, while the other parts are evidently under a state of inanition. Or in other words, the natural balance of the circulation, in consequence of the occurrence of topical determinations of blood to particular parts, may not be equally maintained. Such a determination to the brain is not unfrequently the cause of epileptic fits, though at the same time the general system be neither strong nor plethoric. In a fit of madness the brain evidently appears to be in an excited state similar in some degree to what occurs in the violence of anger. Hence may be explained the uncommon strength of lunatics, with their almost incredible power of resisting sleep,

hunger, &c. Various topical affections of the brain, as abscesses, effusions, preternatural ossifications, &c. have been found on dissection to be the evident causes of melancholy and madness; affections very similar to these have also been frequently known to excite vertigo, pain in the head, apoplexy, palsy, epilepsy, &c.

The palsy is produced by a sanguineous plethora, by a ferous effusion, or by debility and a diminution of the nervous energy. When the nerves going to a particular part are tied or cut, the part becomes paralytic, loses all power of motion and turns cold, yet it does not mortify, and the blood has a languid circulation through the vessels, for the nerves not being all cut or tied the part suffers only partially, and becomes motionless, cold, and less sensible. For though the larger branches of nerves were tied, cut, or obstructed, yet amongst the almost infinite division of nerves a number of these small branches are still left, at least sufficient to continue the circulation of the fluids in the larger vessels. In the palsy, the nerves that used formerly to supply the paralytic part are obstructed in their plexus; but the parts beneath are not stiff, rigid and inflated, which would certainly be the case if the nerves were inflated, but being perfectly obstructed by some coagulum, the parts become weak and flaccid.

All the symptoms of nervous diseases evidently appear to arise from the causes already assigned, and many of them are felt after eating too hearty a meal. The symptoms are a dull heavy uneasiness, lowness and dejection of spirits, languor and lassitude, restlessness, the eyes dull and heavy, a stupor or pain of the head, faintness, a great inequality of spirits, frequent sighing, belching, inflation of the stomach, a sense of fullness, loss of appetite, costiveness, languid and irregular pulse, frequent discharges

discharges of large quantities of pale water, bad nights, frightful dreams, a sense of cold down the back, dimness of sight, cold sweats, vomiting of tough phlegm or bile, wandering pains, noise in the ears, &c.

When the native vigor of the solids and nervous system is relaxed and loses that reaction on the fluids which is necessary to preserve their motion, then the heart redoubles its efforts to relieve and support nature when it languishes or is in hazard of being over-powered, to excite an active tension through the whole series of solids, and to enliven and prepare them for admitting and acting upon the fluids. It is therefore a certain sign of relaxation and internal weakness, and that the active powers and principle of life are languid and sluggish, and do not penetrate and animate sufficiently the animal frame, when the heart flutters and palpitates, which is a very common symptom in nervous diseases. Nervous diseases have their intermissions, when the patient thinks himself quite well and free from every nervous symptom, but these periods are very uncertain and irregular both in their returns and duration. They bear a visible analogy to intermittent fevers; we often observe an ague to degenerate into a nervous disease.

In consequence of this opinion respecting the seat of the complaint in nervous diseases, we are directed to a very different practice from what is commonly followed. We shall find the indications of cure are not to correct the acrimony in the fluids, to open the obstructions in the finer vessels, to resolve the spasms upon the surface and promote a regular perspiration and then to brace up the solids; these are only secondary considerations, and ought never to form an object in the primary indications of cure.

The first indication of cure should be directed to the alimentary canal, to evacuate the cause in the readiest manner possible, which is done by vomiting and purging, which must be varied according to the strength and constitution of the patient, and the time and progress of the disease. If this be the grand intention in the cure of these complaints, a physician will be naturally attentive to what is of the greatest moment, and will direct all his art to the cause of the disease, attending to other matters as of slighter consequence and secondary effects proceeding from the original cause.

The second intention, if the first has been timely and effectually pursued, is to prevent the same cause being a second time induced upon the body. If the first intention has not been effectually performed, or set about too late, and the morbid cause has entered the blood, relaxed the tone of the finer vessels and formed obstructions, then, after clearing the alimentary canal, unloading the larger internal vessels, restoring the equilibrium and thereby relieving nature of her oppressive load, gentle and penetrating deobstruents are indicated to remove the obstructions and to throw off the superfluous peccant matter by perspiration. Then the second intention comes in very properly to be pursued.

To answer the first intention, if the patient complains of sickness, a load at the stomach, heart-burn, sour belchings, a stupor or heaviness of the head, or any other symptom which shews that the plethora or redundancy of matter is chiefly confined to the stomach, a vomit should be given, and if necessary, repeated, but not to exceed three times at most. When the offending matter has passed from the stomach to the bowels, in that case any of the following opening medicines should be given and continued

continued for a considerable time, till the cause is removed; but previous to the exhibition of any opening mixture, a glyster, such as the following, should be injected every morning for a week, two hours before the patient gets out of bed. During this course the patient should keep very quiet, live temperate, drink no wine or tea, eat much fruit, breakfast and sup upon water-gruel, and use very moderate exercise. Cordials, high-seasoned dishes, the bark and all tonic medicines are highly prejudicial. If this course has not been effectually pursued, or begun too late, when the whole animal system is relaxed and labors under a general plethora, and obstructions are formed in the finer vessels, after clearing, and unloading the primæ viæ, and restoring the equilibrium in the internal viscera, gentle deobstruents, as James's powder, should be given in small doses every night, and in the day the patient should eat plenty of fruit to keep the body open, and take a rhubarb purge with soluble tartar once or twice a week. If the fruit does not answer the desired intention of keeping the body open, some gentle opening and cooling medicine, as the salinedraught with rhubarb, or any of the opening mixtures already mentioned may be given. The Deobstruent powder which I mentioned in a late publication, intitled, *Nature Studied*, has extraordinary good effects in the advanced state of nervous complaints, is certainly, as a deobstruent, superior to any other medicine; but, I avoid saying what is really due to its virtues and to the virtues of the Tonic tincture, which is in most cases superior to the bark, and will agree where the bark does not, lest it should be maliciously insinuated that I write with a view to recommend some particular medicines of my own, though nothing can be more false, for I desire no person to make trial of them 'till every other method has

has failed, and even to my own patients I never recommend them till other medicines usually given in such cases have failed. For the truth of this many can avouch. When other means fail, I think nobody can justly condemn me for giving a medicine whose nature and virtues I am pretty well acquainted with, and from which I have experienced so good effects; nor ought I to neglect to recommend them in such indications where they will succeed in preference to any other medicine.

When the first intention has been effectually pursued, the second is done by strengthening the solids, restoring their lost or impaired elasticity, enabling them to receive the vital energy and influence of the nerves, which will restore a regular and free circulation, direct the nîsus of fluids to the skin, promote a free perspiration, and prevent the same cause being a second time induced upon the body. This is done by strengthening medicines, as the bark, Tonic tincture, which is well calculated to answer such intention, cold bath, free air and exercise. Now the patient may live a little better, and drink a glass of wine; yet he should always avoid drinking tea and coffee, or eating suppers, except some very light thing, such as water-gruel. This method will be found a certain cure in most nervous complaints, if great attention be afterwards paid to the manner of living; but without temperance in eating and drinking, both in quality and quantity, no method or medicine will avail much.

In frenzy, vertigo, violent head-achs, apoplexy, epilepsy, and in all topical congestions in the head, bleeding is very often necessary to obviate the urgent symptoms; but when the pulse is feeble, with great weakness, general bleeding is hurtful and dangerous, but topical bleeding, prudently employed, is of great service. In these cases
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the greatest care is necessary to keep the body quiet, and free from passion, venery or exercise, except in the gentlest manner possible. And the first intention of cure should be long and carefully pursued, and if it be continued a sufficient time, little else will be necessary but great regularity, abstinence, cool regimen, consisting mostly of vegetables and fruit, always paying proper regard to the first passages, to keep the body open, and to prevent a plethora.

In palsies, if there is a sanguineous plethora, a little blood should be taken, and the first passages cleared by a warm stimulating purge or two. After that there is not, I believe, a better medicine than the Deobstruent powder.

A nervous fever generally attacks persons of a lax habit of body, who have been long confined, or undergone great evacuations, fatigue, anxiety, long dejection of spirits, salivations, too frequent purging, excessive venery, immoderate watching or study, damp, wet, and unwholesome air, every thing that weakens the stomach and digestion, relaxes the solids, and dissolves the blood. This fever differs in nothing from the putrid, except in the degree of severity. In the nervous fever fewer causes unite to exaggerate the symptoms than in the putrid and malignant. The nervous fever advances slowly, and seldom arrives to any great degree of malignity; and the attempts to get rid of it ought to be slow and cautious. The putrid fever is violent even in its first attack, its course is rapid, and its termination speedy; therefore the medicines must be powerful. In the beginning of this fever, it seems so slight, that the person, though not well, can scarcely complain of any particular illness; the appetite is only not so good as usual, and he is somewhat chilly, low, and oppressed. When the fever begins to appear more

plainly, its resemblance to a common intermittent or ague becomes very remarkable. The same lassitude and yawning, nausea, heavy pain and swimming in the head, and a shivering succeeded by heat; but all these symptoms are slighter, and the paroxysms of shorter duration than in the ague; they return with great frequency and uncertainty; the patient never sweats nor vomits, but has a nausea and disrelish for every thing, without any considerable thirst; the pulse weak, and a little quickened and irregular, but seldom intermittent. These two stages last very unequally in different persons, generally however bearing some proportion to the length of the subsequent disorder. Some have a slight lax attended with a little griping, which rather increases; the patient is very listless, uncertain chills and flushes of heat, weariness, dejection of spirits, the nausea sometimes increases to an inclination to vomit, though nothing comes up but a little insipid phlegm, an oppression on the præcordia, great anxiety and faintness, the skin gets clammy and moist, the pulse becomes very unequal, quick, and intermittent, the fever remittent, the head much affected with pain, giddiness, and desipientia, the eyes languid, as if falling asleep, yet perfectly wakeful; the tongue, which through the whole distemper had been moist, but whitish, becomes dark, and covered with a thick mucus; the patient fetches frequent deep sighs, while miliary eruptions often appear, which have been known to break out every eight or ten days for months, during all which time the patient languished under the malady. At the beginning there was a cloud in the urine, which subsided towards the bottom of the vessel; this gradually rises higher as the fever advances, till it entirely disappears, which is a sign of an approaching delirium; then it becomes turbid, or whey-coloured:

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the heat is various in different parts of the body ; sometimes a sudden colour and glow comes upon the cheeks, while the tip of the nose and ears is cold, the forehead at the same time in a cold dewy sweat, the ears very susceptible of the impressions of noise, with a constant tingling noise, the patient unable to endure the light, the extremities cold and moist, and the countenance pale and sunk. These symptoms clearly point out indigestion. As the fever advances the symptoms increase, the anxiety and faintness grow much more violent, the tongue and lips grow dry, black, and trembling, cold profuse sweats, twitching of the tendons, and picking at the bed-cloaths, the nails pale and livid, the pulse quick, intermitting, and so exceeding weak, that the vibrations can scarcely be distinguished : sometimes there is a difficulty of swallowing and singultus, very thin, livid, crude, and colliquative stools or profuse sweats ; sometimes a difficulty of breathing, attended with a sighing or sobbing, or insensibility and stupor come on, with loss of hearing, and before death often a profound coma : in others the stools, urine, and tears, run off involuntarily, and vast trembling and twitching of the nerves, are preludes to death, which concludes the scene by a general convulsion. But if the skin grows equally warm, the pulse fuller, the tongue clean and red, there is every reason to expect a happy issue.

No one can read the description of the last stage of a nervous fever without reflecting upon the hospital or putrid fever, which in every circumstance it so exactly resembles, that it is impossible to make a distinction ; and on the strictest examination, no difference can be observed, except in degree, the one being a little more rapid than the other. As no other important distinction can be made, the practice ought to be exactly the same. But the indications

cations of cure are not at first to expel the morbid effluvia or putrid myasmata from the blood, to resolve the spasm upon the surface, to keep up a constant perspiration, to use a hot regimen, to brace up and fortify the primæ viæ, and diminish the vis vitæ by bleeding. This is a very proper course for the second intention, or when the disease is far advanced, and the whole mass of blood in an advanced state of putrefaction, or when the first course has been too long neglected; but it is a very injurious, uncertain, and injudicious treatment at first. Does not the purging, which is a never-failing attendant on the unhappy close of this distemper, strongly point out the cause which has hitherto lain undisturbed in the intestines? Losing a little blood at first in proportion as the symptoms indicate, to obviate any urgent symptoms, is very proper; then a gentle puke, especially if there is a nausea, sickness or reaching, which should be succeeded by gentle cooling laxatives, till the morbid matter is evacuated, and the oppression upon the internal viscera removed: when that is accomplished, the constitution should be fortified, and the circulation accelerated, that the humours may take their proper nifus, and the remaining part of the morbid effluvia or matter pass off by perspiration, which is done by a liberal use of the bark and red-wine, or the tonic tincture, with gentle diaphoretics, as James's powder, Kermes mineral, Deobstruent powder, &c. The bark in small quantities exaggerates the complaint, therefore it should be given from two drams to half an ounce in each dose. When the disease is far advanced, with a great prostration of strength, and evident signs of putrescency, there is no time to be lost, a gentle glyster, phytic, or a puke, as circumstances direct, should be immediately given, and the use of tonic medicines, cold and free air, should follow
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upon the back of it, without waiting to carry off all the offending matter out of the first passages, which may be attended to through the course, and gently carried off by clysters, as the patient's strength can bear.

Intermittents are brought on by improper evacuations, as bleeding, purging, unwholesome glutinous diet, vapour from stagnating water, bad drink, damp fenny country, wet weather, drinking cold liquor when heated by exercise. They are very apt to degenerate into malignant, putrid, or slow nervous fevers, and are disorders of the nervous system. Their proximate causes have a visible analogy to diseases where the nervous system is much affected; and indeed the different genera of intermittents, remittents, and some continued fevers, seem to be greatly analogous, from the similarity of their symptoms, of their pre-disponent and occasional causes, from their changing into one another, and being cured by the same remedies. Contagion, and the vapours arising from low, marshy countries, are the principal remote causes of intermittent, remittent, and continued fevers. Their powerful action is frequently aided by other remote causes, such as exposure to cold, intemperance in eating and drinking, excess of venery, nocturnal watchings, immoderate exercise either of body or mind, neglect of habitual exercise, vexation, grief, &c. All these remote causes evidently act by inducing debility. But debility, succeeded by a spasmodic constriction of the extreme vessels, lay the foundation for the ensuing paroxysm. Debility disposes to irritability and rigid inflation. In nervous and putrid fevers we very often meet with a complication of irritability and great prostration of strength, the spasmodic constriction of the extreme vessels, invert the nîsus of the circulation from the skin to the internal viscera, which produces an
inanition

inanimation on the extremities, and a plethora in the larger vessels of the internal viscera. Boerhaave seems to be somewhat of this opinion, when he says, that in part the proximate cause of intermittents is an inertia liquidi nervosi, which imply a debility of the nervous system. Van Swieten fully explains the meaning of this passage; he not only proves clearly the presence of a debility, but likewise evidently hints at the spasmodic constriction of the vessels. In confirmation of this we may observe, that the intermittent fever begins with the most manifest symptoms of debility, such as languor, lassitude, particularly in the extremities, coldness, tremor, weak and frequent pulse, all of which are evident effects of a sedative cause. By the paleness and dryness of the skin during the cold fit of the fever, a spasmodic stricture of the extreme vessels is most clearly proved to have taken place. To obviate such cutaneous constrictions, and to resist the operation of a sedative cause, an effort is made in the system, which is termed its re-action. The native heat of the body, and the reciprocal action of the internal viscera and their contained fluids, are increased. The vigour of the re-action, considered exclusive of the cause of the disease, is greater in proportion to the irritability and strength of the constitution; that effort of nature, inexplicable to us, takes its rise from one of the most noble and fundamental laws for the preservation of the animal body. In consequence of the re-action, the nîsus of the circulating fluids receives their direction, a full derivation is made to the surface, the constriction of the cutaneous vessels is overcome, perspiration is rendered free, and the paroxysm is terminated by a warm universal moisture upon the skin. Those two states of debility and spasm, if they are not the proximate causes, certainly occur in such fevers, that a
re-action

re-action seems to follow them as an effect, and that all these three states of debility, spasm, and re-action taken together are useful as well in the explanation of the symptoms as of the operation of those remedies which are the most conducive to the cure. Whatever tends to obviate the debility and spasm by co-operating with the efforts of nature to relieve the internal viscera of the plethora, to direct the course of the fluids to the skin and to make a more equal distribution of the fluids over the body, prevent the recurrence of the paroxysms and will remove the cause of the disease; when the cause is once removed the cure must necessarily follow. The best method to bring about that end is, after clearing the primæ viæ and restoring the equilibrium in the internal viscera by an emetic or purgative medicine, to give some gentle deobstruent and diaphoretic, as diaphoretic antimony, small doses of emetic tartar, Dr. James's or the Deobstruent powder, and then to strengthen the viscera, remove the constitutional debility, and prevent the retrocession of the humours upon the internal viscera and the spasmodic constriction of the external: this intention is answered by giving the bark, in doses of half an ounce to an ounce at a time, and one, two, or three doses prevent a return of the paroxysm. The Tonic tincture is an exceeding good medicine in these fevers, and hardly ever disagrees with the stomach. Continued fevers arise from cold contagion, noxious effluvia, vapours from stagnating water and low marshy grounds, and the other common remote causes of intermittents and remittents, which are equally powerful in producing the continued fever and encreasing malignity; yet cold, moist, and damp air have in general a natural tendency to induce fevers of the intermittent or remittent kind, where there is no antecedent unnatural disposition

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to putrescency in the body: There is more or less contagious infection in the nature of all continued fevers which are only a milder sort of the putrid kind; the continued fever changes into the putrid and is cured by the same means. In continued fevers there is a greater degree of debility of constitution antecedent to the attack, less contagion in the noxious matter, and less putridity in the habit. The symptoms of both fevers are the same, and differ only in their degrees of vehemence. The remote causes of each are evidently sedative in their effects upon the human body. The nervous remittent and continued fevers are both tedious and dangerous if they are not properly treated at first, and very soon produce a great degree of putrefaction in the animal fluids. When the inflammatory symptoms are subdued, the primæ viæ cleared, and the internal plethora removed by antiphlogistic medicines, the bark with red wine, the Tonic tincture or some other tonic medicine, becomes absolutely necessary in large quantities.

N° 1.

R Mann. ℥iss crem. tart. ℥iii
 aq. alexeter. simpl. ℥vi syr. ex alth. ℥i. M.
 Dos. cochl. iii.

N° 2.

R Tart. solub. ℥ii mann. opt. ℥ii
 succ. limon. ℥iii aq. fontan. ℥iss M.

N° 3.

R Tamarind. ℥iii coque in aq. fontan. ℥vi per 5
 minut. colatur adde
 sal. cathartic. G. ℥vi mann. ℥ss tinct. senæ ℥ii. m.

N° 4.

N^o 4.

R Sal. polychrest. pulv. rhei āā ʒi M.

N^o 5.

R Rad. taraxaci ʒiii coque in aq. fontan. ſbi ad ſſs
colaturæ adde
tart. ſolub. ʒi aq. n. m. ʒſs fyr. ex althæa ʒſs M.

N^o 6.

R G. ammon. ʒi as. foetid. ʒi
tart. emetic. gr. ii f. Pil. N^o 24. Dos. N^o iij

N^o 7.

R Juſcul. ex carne ovina elixá confect. ſſs
elect. lenitiv. ʒſs aloes ſocotorin. pulv. ſubtiliſs. ʒii
m. f. Enema.

C H A P. V.

Of the G O U T.

THE Gout is a chronic disease; which has puzzled the ablest physicians, and is called the *opprobrium medicorum*. Though many books have been wrote upon it, it is yet but imperfectly understood and seldom cured. So little help is expected from medicine, that the patient is deprived even of hope, that cordial of life, which in every other complaint he is allowed to enjoy, and being consigned over to patience and flannel, has nothing left but to endure the racking pain, and to let the disease take its course. It is a truly deplorable case to which one drop of comfort cannot be administered.

The incurableness of the gout is a maxim so strongly impressed upon the minds of the people, so generally adopted, and so much countenanced by many physicians, that it has the appearance of presumption in any one to undertake the cure of it, and weakness in the patient to submit to the trial; yet I am fully persuaded that it is curable in most of its stages and degrees, that a present paroxysm or fit may be relieved, its returns prevented, and that as many gouty patients may be recovered and established in perfect health as in any other chronical complaint. Why does the gout return? because people have adopted many erroneous notions about it, proper methods are seldom used to prevent it, and the patient when he gets well, returns to his former habit of life, which produced it at first and will for ever produce it, while his strength of body remains. The misfortune attending the gouty patient is his being too well in the intervals of the fits,

fits, when he forgets his former pains and insensibly falls into the same course that first gave rise to the disease. His constitution, 'till its broke down by repeated fits, is good, the solids firm, elastic, and sensible of irritation, the appetite pretty keen, the spirits lively, and the palate covetous after rich eating, high sauces, and a chearful glass. He drinks away sorrow and drives away care, and being constitutionally inclined to libidinous pleasures he is seldom sparing in such gratifications. In this hurry of thoughtless intemperance 'tis in vain to tell him that he is laying the foundation of much future pain and misery, and that pleasures are heightened by a sparing use. But the scene soon changes from that of pleasure to a proportional degree of misery. For as certainly as we transgress the laws of nature either in eating or drinking, so certainly shall we receive our punishment in one disease or another. Inactivity and intemperance lay the foundation, idleness supplies materials, and the constitution determines the nature of the disease. It is observable that gouty people seldom have the scurvy, and are as seldom free from gravelly complaints. The furfuracious scurf of the leprosy is of the same nature with the gouty matter that lodges upon the joints. Take some of the white substance from the joints of a gouty person and put it into a phial, into another of the same size put an equal quantity of chalk; into each bottle drop some spirit of vitriol, and it will produce the same violent ebullition in each phial, and by adding a sufficient quantity of the spirit you will entirely dissolve the matter contained in each phial. Make the same experiment upon the human calculus and the leprous scurf, and not the smallest difference will appear. This experiment plainly proves that the gout, gravel and leprosy are in fact one and the same

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disease,

disease, arising from the same general cause, and receiving their variety from the different constitutions and habits of body.

There is certainly a pre-disposing constitutional cause, which, in company with many others, co-operates in forming the gout, for temperance in all possible cases will not prevent it, though, with truth it may be said, that in ninety-nine cases out of a hundred it will succeed, and will in all cases render the fits, even those that are constitutional and hereditary, slight, easy, and insignificant. No one can dispute with reason, and any tolerable degree of observation, that there are instances to be met with, where the gout has seized people that have lived regular, and at the same time taken proper exercise. To say that there is no gouty constitutional tendency in any case whatever, would be to deny both the testimony of the most eminent physicians who have ever wrote upon the disease from the days of Hippocrates to the present time, and also the testimony of daily experience. For if indolence and intemperance were the only causes of the gout, that disease would necessarily be transmitted to every man who was under the influence of these causes, and he could not possibly be free from it; but this is not the case, there are many instances to the contrary, consequently they are not necessarily so. Therefore we may safely pronounce from the nature of the complaint, from the testimony of the most eminent physicians in all ages of the world, and daily experience, that there is a constitutional tendency to the gout, but of such a nature that the child of parents, who never had that complaint may, by their own conduct, acquire it and induce a constitutional disposition to it, and the child of gouty parents may escape it; yet it oftener happens to be the fate of the

last.

last. Intemperance will produce it in most, and the contrary practice will prevent it in as many, and render it slight and very insignificant in all. In scurvy, asthma, consumption, nervous disease, &c. there is somewhat of a constitutional tendency. Nor is it very reasonable to suppose that the internal structure of a child should bear less resemblance to those of the parents, than the nose, eyes, or any other feature of the face. Parents, whose fibres and circulating vessels are greatly weakened by this disorder or otherwise, will naturally beget children with weak and relaxed constitutions, and consequently whose whole habit is formed for favouring the gout; and if the greatest care is not taken they will be always liable to have this disorder, and so far the gout may be called hereditary. Without a pre-disposition we are often exposed with impunity to otherwise very active causes of disease, and without the application of the cause the pre-disposition may continue with us through life without inconvenience. But there is certainly no foundation for the opinion that has been much supported, that the gout descends from father to son for generations, and that there are certain latent seeds of the disorder in the blood, which are conveyed from parents to their children, and when once perfectly eradicated will never return. Upon this opinion and in order to destroy this latent gouty matter, is founded the doctrine of specifics in the cure of the gout; but it will be found not only from observation but from reasoning physically upon the nature of the human body, that all specifics and nostrums, which are said to act upon the gouty humor only, elected from the other juices, and thereby cure the disorder, are vain and ridiculous.

The poor and industrious part of the people, it must be confessed, are little troubled with the gout, not because their blood is more healthy, for great heats and cold, to which they are exposed, render it often much the reverse, but hard labor carries off that redundancy, temperance keeps the stomach in due order, prevents the accumulation of matter upon the vessels, and preserves the body temperate and cool. And if by chance they should at any time transgress the rules of sobriety a little, the consequence is not very disastrous to them, because their constitutions are strong and unimpaired by frequent repetitions, and the remedy is hard at hand, which they must apply whether they will or not, they are necessitated to return to their labor, to starve or steal. The gout therefore may very properly be called the disease of the idle, the rich and voluptuous; as temperate living and regular exercise assist digestion and promote the regular secretions so as to prevent the accumulation of the gouty humor, so excess in eating and drinking, indolence and voluptuousness will proportionably injure digestion, occasion a plethora of ill-conditioned humors, a vicious sensibility and great prostration of strength, and at last produce the gout.

In a constitution long habituated to produce gout there is some difficulty perfectly to remove the complaint, yet by proper treatment and a due regard to temperance and regularity, it may be soon greatly mitigated, and every fit become less and less severe, till at last it entirely disappears, and nothing more remains than a constitutional tendency, which by irregularity in eating and drinking will again produce the same disease. The reigning prejudice of the gout's being incurable, and that patience, good nursing and flannel are all that can be done, is a dangerous

dangerous error, and occasions the death of thousands, yet I do not affirm that the gout is radically curable in every subject. Those who have acquired it entirely by indolence and intemperance stand a fair chance of a cure in all cases, but those that to indolence and intemperance have a constitutional tendency will be liable to slight returns, or some gouty symptoms upon any little irregularity. There is no preventing a constitutional tendency from breaking out in actual symptoms, as little pains, inconsiderable swelling heat and inflammation of a day or two, upon any encouragement given.

As the gout is a chronical disease, and makes its approaches slowly, so like all other diseases that are slow in their advances, it is generally very tardy in making its exit, and requires a considerable time before it can be removed even by the most judicious treatment, which tires the patient, who despairing of relief gives up his case as incurable, which is another cause why the gout is so seldom cured.

Again, some unhappy patients are willing to groan under the gout, without making use of any means to obtain relief, from an opinion that the descent of the gouty matter upon the extremities is a true crisis, or the only method nature adopts to unload herself, and to preserve the body from an infinite number of more dangerous distempers, and that even an attempt to cure it is hazardous lest it should be attended with worse consequences. This is a very erroneous opinion, and is one principal cause of the gout's being so seldom cured. Some patients, afflicted with the gout, enjoy tolerable health during the intervals of the fits, but a great many more do not, and those that do, their happiness is of short duration; when they have had a few fits they become lame, if not quite

crippled by anchylosis, nodes, or palsy, or they become weak and relaxed and loaded with concretions. And it often happens that while they are waiting for the descent of the gouty matter upon the feet, they are carried off by some distemper proceeding from a gouty disease. Daily experience proves that the gouty matter falling upon the feet is not a perfect crisis, and that nature does not confine herself to the descent of the gout upon the extremities as the sole crisis in the complaint. A fit is often carried off by a diarrhæa, hæmorrhoidal flux, abscess, &c. Those that wait for the descent of the gouty matter upon the extremities are in danger every time nature is on the point of renewing or establishing this so much desired crisis, and are never certain but nature may act contrary to their wishes and expectations, and in place of pain, swelling, and inflammation in the feet, occasion a dysentary, pleurisy, peripneumony, apoplexy, palsy, phrenzy, &c. Therefore it appears infinitely more prudent to contend with the gouty matter, and endeavour to remove the cause of the disorder, than to nourish it, and to run the hazard of the uncertain termination of it when it has advanced to such a height and degree of strength as to form a crisis, which is nothing more than an increase of the disorder to such a degree as to render it impossible for nature longer to bear it without making a struggle for its own preservation: for the danger is proportioned to the quantity of gouty matter, which spreads its influence over the whole body. When it is accumulated to a certain degree it will be felt every where, commit depredations on every part of the body, and produce various symptoms, hypochondriacal and nervous disorders, tertian fevers, chancres, formation of abscesses, jaundice, phthisic, asthma, cough, consumption, stranguary, gravel,

vel, stone, chronical rheumatism, wandering pains, eruptions, anchylosis, inflammatory fevers, malignant ulcers, king's evil, St. Anthony's fire, ophthalmias and prickling heat in the eyes, deafness, lumbago, polypus, nodes, contractions, impotency, concretions; in short an accumulated and inveterate gouty matter assumes the appearance of almost every chronical disorder, and a gouty person, if he wantonly and erroneously waits to try nature's powers in throwing it upon the extremities, must expect, beside what is called the gout, many other infirmities. Therefore in whatever period of this distemper we view the patient, he appears rather to be an object of pity than of envy and compliments, and needs the relief and assistance of art in all degrees of the disease, as much if not more than any other patient. Every gouty person that follows the present method of flannel and patience, and makes use of no means to procure relief, will find himself all his life time exposed both to great pain and eminent danger, and at last when unassisted nature is wore out with repeated conflicts, the patient falls into a cachexy, and a total depravation of the solids and fluids, languishes in great misery, with his legs swelled or quite emaciated, a depraved appetite, belchings, nauseas, now and then vomiting, a weight upon the breast, or a troublesome cough, in expectation of a fit to relieve him, till at last an excruciating pain in the stomach, dropsy, phthisic, consumption, cholic, dysentery, an atrobilious flux, peripneumony or pleurisy, deliver him speedily from his pain by putting a period to his life. Whoever therefore will impartially examine and consider this disease, must be thoroughly persuaded that the advantages that are promised to every gouty person, who trusts entirely to flannel and patience, are mere delusions, invented

ed only to mitigate the idea of his torments by endeavouring to revive his drooping spirits under the expectation of the fatal catastrophe. It must therefore appear to every unprejudiced person most consistent to endeavour to remove the disease in all its stages, than supinely to sit down and mourn over the calamity till it advances upon the constitution, and gains such strength, as to ease him at once of his misery and existence. We should then attend to nature and assist her in her own way by directing, regulating, promoting and forwarding the evacuation of the gouty matter, in all stages of the complaint, by whatever outlet nature has made choice of.

Few can divest themselves of long and established prejudices, and many, no doubt, before time has wore off their erroneous and ill-grounded prejudices and notions about the gout, will fall a sacrifice to their ignorance and folly. Some indeed apply to physicians, but they are in general timid or ignorantly believe the complaint to be incurable, and therefore are not solicitous to find out any medicine of much efficacy. Others proceeding upon very erroneous notions of the nature of the disease, are more likely to do hurt than good, and those that understand the complaint and would administer effectual remedies, find their patients untractable and unwilling to submit to proper directions long enough to feel benefit from them, and leaning to the popular opinion of the gout being incurable, they too soon lay aside the means to convince themselves of the contrary. For the cure of the gout, like all other chronical diseases, requires a considerable time to perfect the recovery, though the physician is perfectly well acquainted with the nature of the disorder. Others in a state of pain and despair fly to empirics for assistance, who, being ignorant of the animal œconomy,

economy, and the limits of good medicines, which they sometimes possess, and being incapable to distinguish cases, or when their remedies should be administered, are led to apply them at random, therefore their attempts to do good, though they may be sometimes successful, are at best hazardous and frequently fatal, and of the two evils the gout is the least dangerous.

Another reason why the gout is so seldom cured, is not only the injudicious treatment of it, but no care is taken or means used to brace up and strengthen the relaxed fibres, and to give a force to the weakened muscles, to prevent the vessels from being filled, and the vital powers from being oppressed with a load of ill-conditioned matter, to keep the blood and juices in a state of balmy fluidity, and to put the constitution in a state capable of resisting the disorder for the future; therefore the same evil is again formed in the body, and the disorder returns with equal, and perhaps redoubled force. This has arisen from a mistake in supposing the gout to arise from some viscosity, acrimony, or bad quality in the fluids, and not attending to the solids. Medicines have been given to alter the state of the blood, but the solids have been neglected. If both intentions were attended to, a constitution, though weak, feeble, and tottering, when the vital powers are not mortally hurt, though the nerves and fibres have lost their elasticity, and the joints rendered totally useless by chalk-stones, may even in that state be greatly relieved; and if there be any tolerable degree of strength or vital power remaining, the patient, when properly treated, cannot fail of being in time so effectually restored, as to be able to resist not only the gout, but almost every other chronic disorder, provided a strict watch is kept over the passions, while a regimen and proper medicines

medicines are used effectually to remove the complaint, and to fortify the constitution against its formation and future attacks. But anger, vexation, fear, and venery, will occasion a relapse, and retard, and go a great way in preventing the good effects of the most judicious mode of cure. I do not mean that in all cases it is possible to restore the patient to a vigorous state of health, and to recover the use of the joints. When the constitution is broke down by violent and repeated attacks, each return exaggerating the complaint, and rendering the patient less able to bear the succeeding one, when hard diffused tumefactions around the joints, oedimatus swellings, nodes of various degrees of consistence or induration, stiffness and contraction of the joints with and without swelling tumefaction or atrophy of the limbs, weakness or total privation of strength, sometimes alone, sometimes with various affections of the joints, have rendered the patient a feeble, gouty cripple. In such cases all that can be done by the most judicious treatment, is to restore the constitution to that degree of strength, as to enable the patient to spend the remainder of his days in a tolerable degree of comfort, free from violent and dangerous attacks, with little more knowledge of the gout than a strong constitutional tendency, which, upon any trifling irregularity, will certainly break out into an actual fit. But by the present method of treating the gout, such a patient must lead a life full of misery, daily exposed to imminent danger, with one only consolation, that his existence is generally of short duration, and death puts an end to that misery which medical treatment, founded upon mistaken notions, in vain attempted to mitigate.

Various are the opinions which physicians have advanced concerning the nature and cause of the gout, and
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many are the regimens advised for the relief and prevention of it, yet all allow that it is an inflammatory complaint; and as heat stimulates and relaxes, increases the pain and fever, and very materially impairs the tone and function of the diseased part, therefore heat, and all hot medicines, will exaggerate every symptom. This is evident to every person that understands the nature of the disease. The present method of treating it with wine, cordials and rich food, must be condemned as very injurious, as it only serves to enflame the blood the more, increase its velocity, heighten the fever, and make the fit more severe, painful and durable. It is also very wrong to keep the parts particularly affected in the gout too warm. The boodikin is very improper, and certainly destroys the elasticity of the fibres, inspissates the juices, renders them more acrid, and leaves the affected parts, where it is applied, benumbed.

After a fit of the gout, the muscular motion of the parts affected is in a great measure suspended, and their nerves and fibres are extremely weakened and flabby from the irritation they suffered, and their component parts being stretched beyond their spheres of contact by the plethora, and the now almost inactive matter hangs upon the parts, and forms considerable swellings, which are often accompanied with a heavy, dull pain, and which, without the assistance of art, continue, till, increased by succeeding fits, they at length destroy entirely the motion of the parts upon which they are formed. Sometimes indeed, where the fluids are not greatly vitiated by frequent severe attacks, where the nerves and fibres are not much relaxed, where the plethora is not general and great, and where the powers of nature are succoured by art, we often see a critical discharge of gouty matter through the pores
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of the skin, in the form of a thick stinking sweat, by the kidneys in the form of a thick discoloured urine; sometimes by fits of vomiting, when an acrid, greenish coloured liquor is discharged; but most commonly this critical discharge is made by stool, when the excrements are extremely acrid, and appear as if they were mixed with too great a quantity of thin acrid bile. But in place of aiding our true friend Nature, we leave her unsupported to do the whole work; and after obtaining a partial advantage by forcing the enemy to the extremities, we still leave it, though weak and enfeebled by the attack, to get rid of the gouty matter the best way it can, which, feeble as it is, it attempts to do. This I will take upon me to say is a very erroneous practice, and can only proceed from an entire ignorance of the nature of the disease, and is no doubt another great reason of its being thought incurable. The gouty paroxysms, as I shall afterwards prove, are only an effort of nature to relieve itself, and being unable to expel the gouty matter by some natural outlet, and thereby form a perfect crisis, it throws the offending matter upon the extremities, and thereby forms an imperfect crisis, and people in general are satisfied with that effect, and when they should be most active, they become most indolent. A judicious medicine given in the fit has the assistance of nature, which is at that time struggling with the enemy, and fighting for victory; but being too weak to give the enemy a complete overthrow, is forced to compromise the matter. In the heat of the action, when the matter remained undetermined, was the time to throw in relief. Sydenham says, the feet are the genuine seat of the morbid matter of the gout, which, whenever it attacks any other part, clearly proves either that the course of the disease is obstructed, or the
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strength impaired, so that nature is unable to expel it according to her usual way. This is certainly a mistaken notion, and proves that the greatest men are fallible. Nature has not given the feet any constitutional outlet, and never intended that the body should be depurated by the feet; and if the constitution was sufficiently strong of itself, or judiciously and timeously assisted by art, it would never form a crisis by depositing the gouty matter upon the extremities, which is only Hobson's choice, when it can do no better, but would get rid of the offending matter by stool, urine or perspiration, the outlets which nature has appointed.

In the animal body a certain degree of heat is necessary to produce animal heat and motion; if it is below that degree, the blood coagulates; if above it, putrefaction and death, or a tendency to putrefaction, and all the train of putrid diseases, arise. I have already proved that animal bodies have a great tendency to putrefaction, and it is well known that heat forwards that tendency; therefore in proportion to the heat of our bodies, the putrefactive progress will be quicker or slower. Huxham says, that a person who lives upon water only, and flesh and fish, without any thing either acid or acedent, soon contracts a very great rankness in all his humours, he grows feverish, and at last his blood runs into a state of putrefaction. Again, as the heat depends upon the action of the nerves upon the vessels and their contained fluids, and the fermentation or self-moving quality in the blood, so the heat will be proportioned to that cause, and the putrefactive progress will be quicker or slower. But in gouty habits, the nervous influence upon the body is greater than in other constitutions, therefore the blood is hot and enflamed, and the solids have a rigid and vicious sensibility; and

and as heat, and all hot bodies, tend to promote these effects, gouty people should avoid too much heat, especially in the feet. The common method of treating this complaint is however very contrary to this doctrine, and is the cause of the swelling and weakness remaining so long after the fit is gone, and produces that chalky or gouty matter which lodges upon the joints. From our inattention to nature we become great enemies to ourselves, and where we ought to pay the greatest attention, we often pay the least. The sooner the joints are relieved from pain and distensions, the less their strength will be impaired, and the obstructions will not fix so strongly upon them, so as to impair or destroy their power of action; but in place of this, the general practice is to increase the fever and cause of the disease, and at the same time relax and heat the parts affected by flannels, boodikin, wool, &c. that the humours may be inspissated and hardened into stone, and the joints burnt up into a cinder, that they may be deprived as much as possible of all power to move, and the patient left a gouty cripple for the remainder of his days.

In all putrid bodies and sceptic fermentations there is a predominant alkali. Huxham says, that the strongest vegetable acids we take in with our food are by the vis vitæ changed into a neutral, or a kind of ammoniacal salts; and by being longer and longer exposed to the action of the vessels and heat of the body, they more and more approach to an alkaline nature, and at length would actually become alkaline, were they not diluted, washed off, and corrected by acescent drink and diet. The blood and juices, as they degenerate into a putrescent state, become more and more alkaline, therefore the blood of gouty people abounds too much with an alkaline humour.

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That the acrimony of the gout is of an alkaline nature, appears from various experiments. If a little of the syrup of violets is put into the serum of the blood of a healthy person, and one in a violent fit of the gout, the latter will be much greener than the former, which shews that there is more of an alkaline body in the one than in the other. If there was an acid, the syrup of violets would turn the serum to a red colour. Distill equal quantities of healthy and gouty blood with the same degree of fire, and continued for the same length of time, the gouty blood will produce full one quarter part more of alkaline spirit than the healthy. This is a matter of no small consequence in the treatment of the gout; if an alkali is predominant, then acids, fruit, vegetables, all acedent food, cool acidulated liquors, and gentle cooling physic, should be recommended; but if an acid abounds, all sceptics, heat, animal food long kept, hot spicy meat and spirituous liquors, are wholesome; *contraria enim contrariis vincuntur*. Yet in the gout, though the fluids have a strong tendency to solution, and consequently abound with an alkali, we see that complaint too commonly and almost universally treated with hot cordial spirituous liquor, high seasoned and rich food, which is one cause that physicians prescribe with so little credit to themselves, or benefit to their patients, and strengthens the popular opinion of the gout's being incurable.

In the gout there is a plethora, as we shall afterwards prove; and that plethora is, by the vital powers, lodged upon the extremities in every paroxysm; but a plethora always produces a proportionable degree of relaxation in the over-stretched vessels; therefore, by keeping the feet so hot, the plethora is increased, the vessels are relaxed, and thereby become liable to have a load of humours

humours thrown upon them, upon every occasion, when the blood is heated, or the nifus of the circulation inverted, and turned upon the internal viscera by cold, obstructed perspiration, &c. and the feet are thereby made the sink of the body; and what in other constitutions would pass off by urine, perspiration, or two or three lax stools, occasions a fit of the gout. By keeping the feet too hot, a gouty constitution is formed by art, the equilibrium between them and the rest of the body is destroyed, and in such a constitution the nifus of the circulation tends as naturally to the feet, as obstructed perspiration and a relaxation of the internal organs give an advantage to the external, and occasion a load upon the lungs, stomach, or bowels. This material error, in the treatment of the gout is the cause of its frequent returns; for after two or three fits, a gouty constitution is unavoidably formed, and the feet must certainly be affected upon every slight occasion. What would only occasion a slight cold, trifling fever, or a little griping pain in the bowels, not perhaps worth mentioning, would in an artificially formed gouty constitution produce a fit of the gout, which may perhaps confine the patient a considerable time. If the gout only happened to prevent any dangerous illness, something might be said in favour of the practice, but that is not the case, when the body is seized with any alarming illness the gout does not make its appearance or lend its aid. I appeal to the experience of every gouty person whether they have not the gout from very slight causes, and when seized with a putrid fever, or any other violent attack, whether they have then any tendency to the gout. By this mode of proceeding the very intention of nature in providing so many outlets to carry off the superfluities and occasional fulness of the body is frustrated,

trated, and in place of passing off as nature intended, the plethora falls into the sink of the body, the feet. The person that puts his feet into snow, ice, or cold water, acts more rationally, than if he wrapt them up in wool and flannel. Bathing the feet in cold water will prevent the gout, and bathing in hot water will produce it. I do not mean that every one in a fit of the gout should cram his feet into cold water. If there is a great plethora, known by the intense pain, heat and inflammation, it would be dangerous at that time to invert the reflux and flow of humors to the extremities, for by a sudden constriction of the parts the plethora might fall upon the brain, heart, lungs, stomach or bowels, and the consequence might be dangerous; but in slight fits, before the paroxysm comes to the height, or when the pain begins to abate, then cold water, cool air, and moderate friction, at the same time carrying off the redundant humours as nature directs, either by gentle physic, mild diaphoretics or diuretics, will do wonders. By this method the fits may be rendered short and easy, and for the most part entirely prevented, if begun early. If a gouty person keeps his feet dry, bathes them frequently in cold water; wears flannel socks, and when he feels any pains or symptoms of a plethora, restores the equilibrium by depletion, and at the same time lives temperately, uses exercise, and moderates his passions, he will thereby remove the gout and all its symptoms.

After what hath been said we cannot be surprized to find so few gouty patients cured; it would be a wonder if we found more, considering the many capital errors people in general labour under in their notions of the nature and treatment of the gout. If I was to give directions to a gouty patient, in a few words, how he was

to proceed, I would advise him to do every thing that was contrary to the general practice, and to avoid every thing that was; but as something more will be here expected than directions so general, I shall first endeavour to point out the nature and cause of the complaint, and the first indisposition of the human body which favours this disorder, and by what means the nerves and fibres lose their elastic force and motion. I shall next shew the method of treatment, and the means to put the constitution in a state to resist this terrible disorder, which will be much more meritorious than the giving of ease and palliating it, when it has already begun its attack.

The gout is certainly a disorder of the nervous system. There is a visible analogy between nervous diseases and the gout; the remote causes are the same, and the variety only arises from the different constitutions and habits of body. The similarity of the symptoms, their changing into one another, and being cured by the same remedies, evidently prove the analogy, and shew the nervous system to be much affected in each complaint. The nature of the symptoms points out indigestion and some peccant matter in the *primæ viæ*, as the principal or primary cause of the disease. Baglivi says, *Omnia remedia calculosis et podagricis præscripta inutilia propemodum erunt, nisi vinum, Venus, otium et crapula temperantius usurpentur*. Etmuller says, *Bacchus dicitur pater, Venus mater, & ira obstetrix arthritidis*. Hippocrates says, the gout is not to be cured without temperance. Galen ascribes the greater prevalency of the gout in his time than in the time of Hippocrates, to the great intemperance and indolence which then reigned. Plutarch observes, that intemperance is not only the cause of many diseases, but gives additional

additional force to other causes. Temperance, says Dr. Stukeley, must be inculcated at all times, for though we conquer in every fit, yet the fewer battles the better for our natural strength. A habit is always growing better or worse. Porphyry mentions Rogatianus, a Roman senator, who was crippled with the gout, but being carried in a chair daily to hear Platonius, a Platonic philosopher, he became his disciple, and by living very abstemiously lost his gout. Sydenham supposes the primary cause of the gout to be indigestion. Whatever contributes to improve the digestions, says Barry, and regulates the discharges, particularly insensible perspiration, will give the safest, though slow relief, to gouty constitutions. But indigestion must not be confined to the stomach only, for gouty stomachs, as the gout is a disease of a pretty good constitution, are not at first so much in the fault; the defect is often in the last digestions and secretions of the body, which will happen in good constitutions, if the person lives intemperately, or uses little exercise. The effects of intemperance I have largely insisted upon in a former part of this book, where I have proved that it acts by inducing debility, which disposes to a vicious sensibility and rigid inflation, the nîsus of the circulation is thereby inverted, and a plethora in the larger vessels of the internal viscera is produced. In confirmation of this opinion we may observe, that the first symptoms of the gout are manifest symptoms of debility, such as drowsiness, wind, weariness and dejection of spirits, lassitude and great weakness in the wrists and ancles, sickness, vomiting or bilious purging, &c. which prove clearly the presence of debility, and are evident effects of a sedative cause. To resist the operation of this sedative cause, and to obviate the plethora and oppression of the internal vis-

cera, and the inanition of the external, nature rouses into action, and vigorously exerts herself in her own defence; an effort is made in the system, which is called its reaction. The native heat of the body, and reciprocal action of the internal viscera, and their contained fluids, are increased. The degree of re-action is in proportion to the irritability and strength of the constitution and cause of the disease. In consequence of this re-action the circulation is increased, the blood inflamed, and a derivation of the redundant humours is made to the weakest and most relaxed parts. But in gouty constitutions artificially formed into that state by injudicious treatment, the feet, by heat, wool and flannel, become the weakest part of the body; nature is denied the privilege of making use of her own method to ease herself of the offending matter by throwing it off by some outlet appointed for that purpose by providence in the formation of the human body, and the plethora, in place of passing off by stool, urine, or perspiration, falls upon the extremities, and the feet are made the sink of the body, and forced to retain the gouty matter, lest it should not continue a sufficient time, or return soon enough; as if the patient was in love with the disease, and had formed his constitution for its commodious reception. When the system by repeated attacks is debilitated, and nature is too feeble to evacuate the redundancy by some outlet, or to throw it upon the extremities, and the constitution is reduced to that state to which people at first so industriously labour to bring the feet, the disease becomes irregular, and produces spasmodic affection of the internal parts: the patient is tortured with wandering pains called an erratic or wandering gout, which imitates various disorders according to the different organs which they affect, and are particularly

cularly dangerous as they often occasion sudden death; the whole body is in so relaxed a state as to be equally, if not better prepared than the feet, to receive and retain the gouty matter. This is the state to which all gouty people may expect to arrive at last; for I will venture to say, and appeal to the experience of every gouty person for the truth of it, that no person ever got entirely free of the disorder by the common method of treatment.

The gout is by most physicians supposed to arise from an acrimonious humour produced by indigestion; but there is no necessity, in forming a just notion of the gout, to suppose any great degree of acrimony in the blood from the inflammation, swelling, and great pain in this disease, for a separation of any matter incapable of, or an impediment to the circulation, and a plethora of healthy blood will occasion an inflammation, or increased circulation; from the joint operation of these two causes all the symptoms observed in the gout may be accounted for. The animal œconomy, directed by the powerful hand of nature, is invariable in all its operations. When nature is oppressed by a load of matter which obstructs her in her necessary functions, she uses various arts to overcome it, and unload the body to prevent the dangerous consequences of such obstructions. That effort of nature, however inexplicable to us, takes its rise from that noble and fundamental law of nature for the preservation of the animal body, and is the principle upon which life and animation depend.

That a person may be subject to the gout from a redundancy of blood, without any great degree of acrimony, appears from the affinity observed between the hemorrhoidal flux and the gout. The gout may, and often does supply the place of the hemorrhoids, and is sometimes

times occasioned by their suppression. And they often attack the same person alternately. When the hemorrhoids cease the gout returns, and on the contrary, when the gout ceases the hemorrhoids return and carry off the superabundant flux of humours contained in the blood. An obstruction in the menses will occasion the gout, and the periodical flux in women carries off those superabundant humours, and is one reason that women are not so subject to the complaint as men are. Moreover, causes will bring on a fit of the gout suddenly which we cannot suppose to act in the least on our fluids, such as agitation of mind, or a slight blow or strain of the part usually affected. The sudden transitions or metastases of the gout from one part to another, are often much too quick to be imputed to a conveyance of the gouty matter by means of the circulation of fluids. Another reason which may incline us to believe that the gout arises from a redundancy of humours lodged upon the internal viscera, is its observing periodical returns. The gout is as much a periodical disease as any is or can be; to affirm the contrary is to contradict the experience of most gouty patients. On account of the regularity of its returns, it is called *arthritis regularis*. Every species of the gout is not periodical, but experience proves that it generally returns at certain seasons of the year. We know that the season of the year influences and directs the course of the humours, and is the predisposing cause of periodical diseases. In spring nature unfolds her powers by the genial heat of the atmosphere; in autumn they are more restrained. In spring the heat gives the humours a direction to the outward parts; in winter the cold impedes the action of the external organs, a smaller quantity of matter is thrown off by perspiration, the internal viscera

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are loaded, and the seat of action or the nifus or tendency of the humours is changed from the circumference of the body to the centre. This produces very essential changes in the human body, as health consists in the due balance or equilibrium between the external and internal organs, and that nifus or tendency of the humours arising from their self-moving quality, and their direction by relative vacuums from the stomach to the skin, and other outlets of the body; if from any cause the internal organs are weakened, and their sensibility destroyed, then there will be a vicious sensibility, and a dangerous degree of irritation produced. The internal viscera labouring under a plethora endeavour to unload themselves, by throwing the superfluity upon the cellular membrane and extreme parts, the action of the external parts is impeded, the exhaling vessels are obstructed and shrivelled up by the external cold, therefore nature finds no vent for it by perspiration; the consequence is, it either passes off by urine or stool, falls upon the lungs, or lodges upon the extremities. If at the same time this natural plethora is increased by luxury and idleness, and the humours inflamed by the intemperate use of hot liquors, spices and high seasoning, much animal food and venereal passions, the consequence must be a severe fit of the gout, or some other acute disease. When the matter is lodged upon the extremities, the pain, spasm and irritation of the parts, give a tendency to the whole volume of fluids to the parts affected, and they are drove thither from the stomach and bowels, and crudities, pain, wind, load and oppression, which just before affected the stomach and bowels, and occasioned languor, lassitude and low-spiritedness, are now translated to the extremities. It is this tendency of the whole current of fluids falling upon the stomach, heart, head or lungs,

lungs, that often occasions sudden death. When the cause is not so violent as to occasion sudden death, it produces that cold numbedness, oppression and languor so well known to gouty people. All hot liquors, high seasoned meat, and venereal indulgencies, are certainly poison to a constitution that has any natural tendency to the gout; for they heat, rarify and inflame the blood, prevent the regular and uniform mixture of the fluids, occasion obstructions and detached air or flatus, and produce so many comparative vacuums, where the nîsus of the circulation is naturally directed by the impelling force of the nervous fluid, and disorder the whole animal œconomy. Hippocrates says, *Corporis pars altera alteri, quum tunc vel illinc proruperit statim morbum facit.* The stomach being heated, weakened and impaired, adds daily to the calamity, and keeps a constant tendency or nîsus of the whole volume of fluids, which nature intended to be regularly dispersed over the body, tumultuously rolling from the circumference of the body to the internal viscera; and if that course be pursued, and temperance not substituted in its place, or only continued for a time and then forgot, all the medicines in the world will avail nothing. For proper medicines, temperance and exercise, will not build up so fast, as intemperance and irregularity will pull down.

The fluids of gouty people in the intervals of the fits, and just before its appearance, do not seem to differ sensibly from those in perfect health; and though some variations have been sometimes perceived during the paroxysm, and the blood then has more of an alkalescent quality, yet that difference seems much more probable to be the consequence than the cause of the fit. A disease therefore may and does often arise from no other cause originally

originally than the concert of action and intimate harmony between the brain, stomach, abdomen and whole expanse of the cellular membrane being destroyed, the equilibrium of health lost, and the animal powers improperly distributed. Were the purest mass of humours to circulate through the soundest vessels in any individual thus circumstanced, he must certainly be ill. This method of accounting for the gout enables us to understand how a sudden fright will remove a fit of the gout, and also how cold, strain, &c. will occasion it. Hoffman says, it is not possible that we can explain the true causes of the gout, but by the superabundance of the blood, and the difficulty with which it circulates.

It is a doubt to me whether there ever is **any great** degree of acrimony in the fluids of the body, **except** what arises from putrescency; the only change, **which** we can with certainty say, happens in the human body. But putrefaction produces very great changes both in the fluids and solids, and is sufficient to induce all the symptoms we feel. By putrefaction the blood is dissolved, and loses that firmness and consistence of its parts necessary to carry on a regular circulation, and becomes more animalized, alkalescent and corrosive, the homogeneous parts unite, a windy flatus is detached, the solids are tender and relaxed, the assimilation and secretions are irregular, the nifus of the humours from the center to the circumference being impeded, the equilibrium or concert of action between the internal and external organs is thereby injured and interrupted, obstructions are formed, and these obstructions, by undergoing a still greater degree of putrefaction, may form cancerous or scrophulous sores or ulcers upon the external surface of the body, or in the internal cavities of the vessels, and by absorption contaminate

nate the whole mass of blood; or they may form hard, indolent, schirrous tumors, which, being lodged upon the joints by a fermentative or increased motion in the blood, and by the motion and action of the joints, will wear the same chalky, or solid appearance, as the concretions left there by repeated fits of the gout. If we attend to the nature of the primary elements, explained in the first chapter, we shall easily understand how chalk stones are formed upon the joints, which being repeatedly overcharged with a great quantity of rarified blood lodging a sufficient time to become hard and viscid, are left at last full of hard knobs, which are nothing more than the fluids condensed, hardened and deprived of their volatile and balsamic parts, the more earthy parts remain in form of nodes and chalk stones upon the joints. For these hard, indolent, earthy substances are not formed till after repeated fits of the gout have separated a large quantity, and wrought it up to its most exalted state. Hoffman says, that nothing destroys and coagulates the mucilage of the joints more than the weather, vinegars, and salt of tartar; therefore concludes, that wines which abound with tartar are very apt to produce arthritic disorders. The puffing and soft swelling in the joints of some gouty people is wind, pent up and detached from the common mass of circulating fluids. Wind produced by putrescency is the cause of many symptoms, and exaggerates every complaint. Baron Van Swieten mentions the case of a gangrened leg which received no advantage from the application of antiseptic medicines, but the patient by voiding a great quantity of wind was soon after cured. Wind always accompanies indigestion, and is one of the first symptoms of it.

To say that the blood in a living body is free from putridity or acrimony, and is incapable of all fermentation, is certainly as great an error as to account for all diseases from acrimony and viscidities. Boerhaave was too fond of acrimony, but he was perhaps as near the truth as those that entirely deny its existence, both extremes being erroneous. Some of our celebrated modern chymists say, there can be no just comparison made between the fluids, while they circulate through animal bodies inaccessible to the air, and when they are separated from those bodies and exposed to its whole action, and ought then in consequence to be considered as inanimate fluids. Solano assures us that he has examined the blood of several of his patients, in disorders where it might be supposed to be putrid or vitiated, but could never discover more than a balsamic odour, mingled with an agreeable acidity, therefore concludes from this and other circumstances that there can be no putridity in the human fluids. But Dr. Lind tells us that in dissecting some bodies that had died of the scurvy, the serum was of different colours, and so corrosive, that having put his hands into it, the skin of them came off attended with heat and inflammation. If there be no putrescency in the fluids of living bodies, whence comes that rank smell in the breath, sweat, and stools of patients labouring under putrid diseases? What produces cancerous, scrophulous or evilish sores on the body? If there be no fermentation in the animal fluids, how are the natural qualities of matter changed and divested of those qualities which they are universally found to possess, in all states and conditions where they are accessible to the scrutiny and examination of our senses? Why does syrup of violets and other matters produce various changes in blood taken from different

ferent bodies; and why does that blood upon distillation render different proportions of spirit and salt, and taken from the same body in a healthy and diseased state, discover the same variety, if the fluids underwent no fermentation and animalization, or suffered no change either in sickness or health?

In the gout there are three stages to be observed. Intemperance, venery, and all the other causes which I have already mentioned, relax the stomach, inflame the blood, produce a vicious sensibility in the solids, and give a retrograde tendency of the humours to the internal viscera, which produces a plethora, oppression, wind, darting pains, faintness, &c. These are the seeds sown in the stomach, or the first symptoms of the erratic or unsettled gout; this is the first stage. The second stage is when the paroxysms or fits become regular. The third stage begins when nature is so enfeebled, and the internal viscera so relaxed and weakened by frequent attacks of this disorder and repeated acts of intemperance, that she is no longer able to throw off the redundant and vitiated fluids by any outlet, or deposit them upon the extremities. Then the fits are imperfect, and the gout takes possession of every part of the body.

The accumulation of gouty matter in the body, and the symptoms of an approaching gout, are known by acute flying pains, beginning in the remote and minute vessels, afterwards producing head-achs, vertigos, indigestion, wind and rumbling pains in the belly, loss of appetite, nausea, sickness, reaching and vomiting, sharp, bilious and corrosive matter, with violent shooting pains now and then in the joints of the elbows, hands, knees and feet, or a numbed kind of pain in the elbows, ends of the fingers and ancles, and sometimes in the legs and thighs,

thighs, a tingling in the ears, dimness of sight, a weariness, and great oppression and dejection of spirits, a general lassitude and great weakness in the wrists and ankles, a sensation as if wind and water were passing down the thighs, a heaviness and sense of weight in the legs, great anxiety and faintness, tingling, a clamminess, and bad taste in the mouth, slight heats, succeeded by shivering, a great sense of fullness in the vessels, with a little feverishness, starting in the sleep, and at other times drowsy and lethargic, the pulse variable, sometimes a little fuller than ordinary, at other times weak and trembling, or beating much slower than in the natural state. Do not these symptoms, which are never failing attendants on an approaching fit of the gout, strongly point out the cause to be in the alimentary canal, which has produced a debility and plethora? When these or the like symptoms appear, it may be concluded, that there is an accumulation of gouty matter in the body, which disturbs the motion and harmony of the vital parts, and that nature, although she is not extremely oppressed, is using her efforts to throw it off. After a few days either those symptoms increase considerably, or they subside, and the gouty matter is thrown off by some outlet. But if a person in that state lives intemperately, he will accumulate the gouty matter in a much greater quantity, and the fits will be proportionably more violent. The symptoms increase and are often attended with a strong fever, and a delirium or convulsions, the efforts of nature to throw off the offending matter are now very strong, but the oppression is so great, that if not soon relieved, she must very quickly sink under the burden. In those cases it is that the gouty matter falls upon the stomach, head, lungs, or some other vital part, and occasions the most terrible

terrible and dangerous symptoms, such as great anxiety, a low trembling pulse, spasms, violent reachings, subsultus tendinum, with a great difficulty of respiration, and if immediate relief is not given, death will be the consequence. There are others again whose constitutions are not so much relaxed and overloaded, and who, by living more temperately, prevent the gouty matter or plethora from accumulating so suddenly, where this disorder will hang upon the constitution for a long time before the quantity of matter will be so great and offensive as to excite the efforts of nature to throw it off, but still there will be enough to shew itself, by a variety of symptoms in various parts of the body, by shooting and flying pains in the extreme and muscular parts of the body, by acute head-achs, sickness at the stomach, nausea and reachings, by violent cholics, and all the train of hysterical and hypochondriacal symptoms, and often by little low remitting fevers, which although they are relieved for the present, generally return again without any other manifest cause. As the plethora increases, the pain and other symptoms become more violent, and if the cause of the disease is not carried off by depletion and a judicious regimen, nature does all she is able to relieve herself, and being by the violence of the pain and spasmodic contraction upon the excretory ducts, deprived of the benefit of these outlets, lodges the redundant load upon the feet, where the patient feels exquisite torture, as if the parts were stretched so as to burst, squeezed, burnt, torn and gnawed to pieces with a dog. In the great toe is generally the most pain. When the body is not relieved as nature intended, the feet, and particularly the great toe, become the seat of the gout. This may be easily accounted for, when we consider in the first place the very great
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pressure upon the parts. In the great toe where the gout first settles, the fine capillary tubes not being defended by any fleshy substance, easily yield to the compression of the shoe against the bone, consequently the diameter of the vessels must be lessened, the particles then which would have circulated through the large vessels, stick here and cause a stagnation, which brings on that visible inflammation in the part affected. The capillary tubes in the joints of the feet and hands are also smaller than in most other parts of the body, therefore the gout first settles there. Again the extremities being so far removed from the heart, the circulation is proportionably more languid, and the more immediate and forcible influence of the brain and nerves, struggling to get rid of the enemy, propels the gouty matter to the extremities, which is as far as they can reach. And if we at the same time consider the number of tendons and ligaments which meet together at the extremities and impede the circulation, we immediately see how easily a redundancy of matter of any kind may be retained and collected together at those parts. The plethora being collected there, and falling upon the ligaments and articulations of the bones of the feet, twitch and prick the nerves and tendons like the tearing of a dog or burning of fire, and gives such exquisite pain that the patient cannot endure the smallest touch or the least pressure of any kind, and the pain, irritation, and spasmodic constriction of the membranes and ligaments occasion a greater flow of humours to the parts, and being kept so hot, the inflammation, pain, debility and vicious sensibility, are so much increased, that the feet at last become the sink of the whole body. But nature, even in this state, though we have industriously laboured to throw her out of her natural course.

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of operation, does not withdraw her kind efforts, and as perspiration is the only evacuation then left for relief, she labours to get rid of the enemy that way, and if the plethora was all thrown off by perspiration, it would carry away with it the cause of that disease, but very rarely indeed does the inflammation of the hands or feet procure such an abundant discharge as to produce that effect.

Can any one read this description of the symptoms of the gout without evidently perceiving the principal cause of that disease to arise from something vitiated in the alimentary canal, produced by intemperance in eating or drinking, excess of venery, intense study, neglect of regular exercise; vexation, &c. whose powerful action is frequently aided by a predisposing constitutional tendency to this disorder? All these remote causes act by inducing great prostration of strength, a vicious sensibility, rigid inflation and plethora, from whence every gouty symptom arises; reaction seems to follow them as an effect, and all these three estates of debility, irritability, and plethora, taken together, not only explain the symptoms, but point out the medicines most conducive to their cure. In consequence of this opinion respecting the nature and seat of the complaint, we are directed to a very different practice from what is commonly followed. We shall find the indications of cure are not to wait for the descent of the gouty matter upon the extremities; to use a hot cordial regimen, to brace up and fortify the primæ viæ, and to expel the morbid matter by perspiration. The first and chief indication of cure is to evacuate the cause of the disease in the readiest and safest manner possible, which is by vomiting and purging, which must be varied and proportioned according to the strength of the patient and progress of the disease. If this be the grand intention

tion in the cure of the gout, a physician will be most attentive to what is of the greatest moment, and will direct all his endeavours to obviate the cause of the disease, attending to other matters as a secondary consideration proceeding from the original cause. To answer this intention any of the forms prescribed in a former chapter may be used, varying them as the constitution directs. Sulphur taken internally is a very good medicine. By its purgative quality it carries off the redundant humours without creating great disorder in the bowels. It may be taken in a spoonful or two of milk from 25 grains to a dram and upwards, so as to give two or three stools every day.

If the first intention has not been timeously and effectually pursued, and the cause of the disease has entered the habit, disordered the secretions and excretions, induced great debility, and the re-action is become violent, then after clearing the primæ viæ, where the morbid matter is always most redundant, by gentle physic or clysters, whatever tends to obviate the debility and re-action by co-operating with the efforts of nature to relieve the internal viscera of the plethora, to make a more equal distribution of the fluids over the body, to direct their course to the skin, and to prevent the recurrence of the paroxysms, will remove the cause of the disease, and when the cause is once removed, the cure must of consequence follow. This method admits of many variations according as the symptoms direct, but no medicine can be better calculated to answer this end than the Deobstruent powder. Dr. James's powder is the best antimonial preparation in such intention, and will do very great service, yet the other will be found much preferable. It promotes a free and equal circulation, determines the blood to the

surface of the body, lessens or removes the internal congestions, increases the lymphatic absorption, obviates the spasms of the extreme vessels, favours the cuticular discharge, and diminishes the quantity of the circulating fluids. Hot, irritating diaphoretics, or alteratives, which act more by depletion than by any change they produce in the fluids, are extremely injurious, and their debilitating effects are most severely felt. The weakness induced by them and other injudicious methods of treatment, predispose to the irregular species of the gout, and tend considerably to augment the severity and miseries of the disease.

The second intention is to prevent the same cause being a second time induced upon the body by strengthening the viscera, removing the constitutional debility, and by preventing the retrocession of the humours upon the internal viscera and the spasmodic constriction of the external. Which is done by strengthening medicines, cool, dry air, exercise, temperance, cold bath, &c. This method, which I shall still farther explain, will be found a safe, certain, and in many cases a speedy cure in the gout.

Costiveness in all periods of the disease should be instantly obviated by gentle opening physic, or clysters, as the symptoms direct, but strong purges are injurious, and if given at all should be confined to those cases wherein the vis vitæ is too strong; they are very hurtful and even dangerous where it is deficient, as they contribute to weaken what ought to be the intention to preserve as much as possible. Mild, softening, and cooling aperients, are absolutely necessary in the regular and anomalous gout, and neglecting to give them occasions crudities in the first passages, an increase of the fever, &c.

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When the stomach and bowels are subject to gouty spasms, it will then be most particularly necessary to pay attention to the state of the stomach and bowels. Gentle emetics may be given in slight fits; but in the irregular and wandering gout, where the patient is advanced in years and the constitution debilitated, emetics ought to be avoided, and every opening medicine exhibited in such a case should be the mildest and most gentle possible. Bleeding is very often necessary, especially in the beginning of the gout, to obviate any urgent symptom, but can never form an object in the primary indications of cure. Whenever the accumulation of the gouty matter has manifested itself by the abovementioned symptoms, with a great fulness of the vessels, high fever and violent pain, there can be no danger in taking away a little blood, but it must be done with as much caution as in putrid fevers. The bowels should be gently opened afterwards. When the gout comes at an early period of life, when the constitution is strong, robust and plethoric, and not broke down by the force of the disorder, when the pulse is hard and full, and the inflammation great, or when it seizes with inflammation any of the viscera, as the brain, lungs, pleura, &c. venesection is not to be neglected. When the disease has long existed in the constitution, and weakened it by repeated attacks, when nature is become feeble, much oppressed, and able to throw the gouty matter but very imperfectly upon the extremities, and not in a sufficient quantity to relieve itself, and the gout becomes irregular, in that case bleeding would be highly dangerous, and expose the internal viscera to dangerous attacks, as convulsive asthma, apoplexy, violent pain in the stomach or bowels, delirium, peripneumony, &c.

In some instances, opiates may be of service in the gout. Sydenham recommends them as the dernier resort in the most dangerous and alarming circumstances when the gout attacks the stomach. In cases where the pain is so intolerable as to overcome all patience, the moderate use of opiates may be allowed, and at the decline of a paroxysm to procure a little sleep, but their use requires the utmost care and attention, for if they are improperly administered, they are capable of doing the greatest injury, and that momentary ease which they procure, is dearly paid for.

If the pulse be low and trembling, and an oppression, and catching upon the breath, a dose of musk, that great easer of pain and remover of spasm, may be given with spiritus mindereri, or common vinegar, with a little water and syrup of orange peel. It raises the pulse, mitigates the violence of the pain, removes the spasms, lessens the heat, composes the spirits, and often procures a pleasing sleep and breathing sweat. When the constitution is strong and the pain violent, a cataplasm of bread and milk, with mithridate applied warm to the part, a common treacle plaister, or a thin slice of raw meat, renewed as often as it gets dry or begins to putrify, will give great ease and shorten the fits. If the constitution is weak and the parts much relaxed, a blister to the part, or an issue, will have very happy effects. Agrippa had his legs immersed in hot vinegar, in a severe fit of the gout. Cato used oil of vitriol in broth, to prevent the gout. In a fit of the gout the antients applied a poultice of elder flowers, infused in vinegar and bay salt, and renewed it every twelve hours. By this and many other prescriptions, it appears that acids were outwardly used for the gout. Certainly vinegar, and all acids and acidu-
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lated drinks, fruit, vegetables, apple drink, stewed barley, turnips, flummery, water-gruel, &c. are very proper, and ought to be made use of at all times; and high-seasoned dishes, much fish and animal food, spirits and spirituous liquors, are as prejudicial.

When the force of the gouty matter has spent itself, or when a considerable part of it has been discharged by a proper treatment, and the violent pain and irritation of the parts removed, the same gentle opening medicines should be repeated, and continued till the redundancy is pretty much removed, and the harmony of action between the solids and fluids, and the whole vascular system restored. Then the relaxed solids are to be restored by the Tonic tincture, bark, cold bath, cool air, and moderate exercise. The feet should be bathed in cold water as soon as the plethora and violent pain will permit. It is not prudent when the humours are pouring down fast upon the extremities, the pain great, and fever high, to give a sudden check to the humours, lest they should fall upon the stomach, head or lungs, and oppress those vessels too much. When there is a great quantity of matter and the symptoms more violent, the fever high, attended with delirium and convulsions, and nature being much oppressed is unable to throw it upon the extremities, so that it falls upon the stomach, head, lungs, bowels, or some other of the viscera, and occasions great anxiety, a low trembling pulse, violent reachings, spasms and difficulty of respiration, and subfultus tendinum, the patient is then in great danger. In such a case I have administered the Deobstruent powder with wonderful success, it quickly gives relief and enables nature to throw off the oppressive load. When these symptoms are accompanied with a diarrhœa, it will do hurt

by increasing the diarrhœa so much as to leave the patient little chance of recovery. In so dangerous a situation, the following bolus will check the diarrhœa, and speedily remove so alarming symptoms, if they are not too violent to resist the power of any medicine, which is often the case.

R. Mosch. ʒss.

pulv. epecacoan. Gr. fs.

bol. armen. Gr. xv.

fyr. e meconio qs. f. bolus. tertiâ quaq. horâ repetend.

Poultices of oatmeal, garlick, vinegar and honey, or stimulating cephalic plaisters or blisters, should be applied to the feet. When the gouty matter or plethora is directed to the extremities, great care must be taken not to weaken nature by the use of any purging medicines; the body may be kept open by clysters, and the stomach strengthened by a weak infusion of the bark, spirit of vitriol and lemon peel. It is better to permit the paroxysm to be drawn out to some length, than to run the hazard of the plethora falling upon the internal viscera. When the violence of the symptoms are removed, the patient then may be treated as in other common cases. The method which reason directs and experience proves to be effectual for radically removing this disease, is, as I said before, first to remove the plethora from the internal viscera, by repeated pukes, or by gentle doses of cooling physic; then the attention should be directed to the finer vessels to open the obstructions, to correct any acrimony contracted by the inflammation and plethora, and to promote a regular and free perspiration, by wearing flannel

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next the skin, and by taking at night, going to bed, either James's powder, Mercurius dulcis, with emetic tartar, Kermes mineral, or the Deobstruent powder. During this course the patient's body should be kept open, and great attention paid to the operation of the medicine, and assistance given to nature in whatever evacuation she inclines to promote. If the medicine operates by perspiration, a draught of sage or balm tea, or weak white-wine whey, may be drunk warm going to bed; the patient should be careful at the same time not to expose himself to cold winds, wet or damp air. If from the quantity or consistence of the urine it appears that nature takes that course to relieve herself, the patient may drink now and then a basin of dandelyon, or marshmallow tea. If there be griping pains in the bowels or lax stools, nature may be assisted by a clyster, or a gentle dose of physic. This course should be continued till the patient feels himself light and easy, and no sensible effects can be perceived from the medicine. Then the nerves and fibres are to be braced up and restored to their natural tone, and the whole man invigorated, that a due circulation may be kept up both in the larger and capillary vessels, that no redundancy of humours may be collected in the body to form a new fit. When the nerves and fibres are left in a relaxed state, and the muscles have not a sufficient force to give that degree of velocity to the circulating fluids in the minute vessels, which is necessary to obviate a plethora by debility, and no methods taken to strengthen and brace them up, and to give a greater force to the muscular motion of the parts particularly injured by the gout, to restore the harmony between the external and internal organs, and the equilibrium between the solids and the fluids; when no proper regimen is observed,

every method that can be used to obtain a lasting cure either in the gout or in any other chronical complaint, even though it is assisted with the strictest regimen and greatest temperance, must fail of success, and give only a temporary relief, because the original cause of the disorder still exists; but if due attention be paid to these things, a perfect cure may be expected. Therefore the patient should make use of the cold bath, and as soon as he comes out of the water take the tincture, and have his body rubbed with coarse cloths, or warm flannel, with camphor, for eight or ten minutes, and then ride or walk in the fresh air, or use some exercise in the house, if the weather be bad. The impaired tone of the stomach should be restored by an infusion of the bark, or some other agreeable stomachic medicine; the best I know is the Tonic tincture, which will act as a cordial, strengthener, and deobstruent, and may be given as soon as the plethora and inflammation are removed. The feet, which have been made the sink of the body, and are consequently most relaxed, deserve particular attention; they should be bathed every night in cold water, with a little allum or calcined vitriol infused in it. During this course a proper regimen, strict temperance and exercise, must be used; and at no time is the patient to lose sight of these essential promoters of health. This method cannot fail of soon fortifying the constitution to that degree, as to be able to resist not only the future attacks of the gout, but every other chronical complaint. It will be necessary to continue the cold bath a considerable time, and to keep the body open, to obviate any tendency to a plethora or costiveness. The want of such a medicine as the Tonic tincture, and not following this method, are the cause that every mode of practice hitherto tried has failed of
success

success in repairing the depredations made upon the constitution, and strengthens it to such a degree, as effectually to resist any future attacks. Blisters, issues, bleeding, gentle physic, vomiting, diuretics, and a course of alterative medicines, may give a temporary relief in the gout, and many other chronical complaints, because the plethora is thereby diminished, nature is considerably relieved from its load and oppression, the morbid tendency and acrimony of the fluids diminished, and the harmony of the animal œconomy is partly restored; yet if the last intention be neglected, they will all come short of establishing a lasting cure.

When the constitution is broke down by the severity of the gout, and the solids have lost their elasticity: when the joints are clogged and obstructed, and considerable swellings formed upon them, so that their motion is thereby greatly impeded, and an attempt to use these parts is attended with pain, and the patient in danger of becoming a cripple for life, then the last course should be continued for a very long time, and means must be used to dislodge and throw off the gouty concretions which obstruct and render the joints useless. The cold bath should not be used too soon, till a free circulation is obtained, the gouty matter carried off, and the weakened parts considerably restored. Here the constitution is very delicate, and may be easily overset; and it is not an easy matter to promote a free circulation without enflaming the blood; to diffuse a genial glow and cordial warmth over the body, without heating and bringing on a fever; and to brace up and restore the tone of the weakened parts, without retaining in the body the obstructed matter, and rendering the obstructions more difficult to be removed: to do this, there is not a better medicine than
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the Tonic tincture. It will wear off the crude, gouty concretions and redundancy of humours, and depurate the blood: it will promote a free circulation, and assist nature to work its own cure, by strengthening, invigorating, and diffusing a cordial warmth and activity over the whole animal frame. After the use of it for some time, the patient will be agreeably surpris'd to find what good effects it has. It should likewise be used externally to the joints most affected, by dropping as much of it upon them, three or four times a day, as they can receive; then they should be worked backwards and forwards for several minutes, and covered afterwards with flannel.

To conclude; activity, temperance, peace of mind, and a regulation and due management of the passions, are absolutely necessary for the preservation of health, and recovery from disease; but some that have lived the most regular, active, and temperate, and who have had no apparent cause of vexation, have had the gout from their constitutional disposition to that complaint. Parents therefore, who have children of tender and delicate constitutions, and from the relaxed state of their nerves and fibres, may be subject to the attacks of this disorder, should from their infancy use every artificial means to brace up their relaxed fibres, and to strengthen their muscles, so as to enable them to give a due force to the circulation, and to throw off by perspiration and the other evacuations any redundant humours or acrid particles that may be formed in the body. This is a duty which they owe to their offspring, and which may contribute more to their temporal happiness than any fortune they can give them. I know no better method to do this than by the use of the cold bath from their birth, and the Tonic tincture when they are a little more advanced in age.

C H A P. VI.

Of the RHEUMATISM.

THE Rheumatism is a common and very troublesome complaint, to which the inhabitants of islands are very subject, owing, no doubt, to the damps, moisture, and sudden transitions from heat to cold, so common in islands. It is often endemic in swampy countries, especially if the wind be sharp and cold; and so much resembles the gout in its symptoms, that it is not easy sometimes to distinguish the one from the other, and I believe they are very often confounded together. The rheumatism frequently passes for a wandering gout, tho' there is certainly a very material difference, and great care should be taken to make the proper distinction: they are two distinct complaints, and differ in their nature and method of cure. In the gout there is more plethora and less obstruction, in the rheumatism there is less plethora and more obstruction. The gout arises from intemperance, indigestion, and indolence, and has its rise in the stomach and larger vessels; the rheumatism attacks the sober, industrious, and useful part of mankind, who have neither the means of intemperance nor the power of being idle, and is occasioned by obstructed perspiration from colds, damps, &c. The seat of the rheumatism is in the finer vessels, in the lymphatic arteries of the membranes, which are about the ligaments of the joints, and in the utmost expansions of the cellular membrane. The gout rather tends to fix and confine itself to one place, and particularly affects the smaller joints of the toes, fingers, and wrists; the rheumatism, is wandering and
more

more unsettled, attacks the larger joints, extends along the muscular flesh, and is particularly troublesome to the knees, loins, and rump-bone. In the gout there is frequently a constitutional tendency. The rheumatism is particularized by no such distinguishing mark, but may be induced by its remote evident causes in almost every constitution. The gout does not in general attack at so early a period as the rheumatism. The gout, after the first attack, for the most part returns again, especially when treated in the common method. The rheumatism may at first be cured never to return; and when it does make a second visit, the patient can for the most part assign some cause of his relapse; but the gout returns without any so obvious and visible a cause. Cold, and particularly cold with wet, is almost always the remote cause of the rheumatism, but will never occasion, without some other concurring cause, the gout; it may, and often does hasten a fit. The gout is most common to men, the rheumatism appears indiscriminately in either sex. A fit of the gout is preceded by a variety of symptoms, as flatulency, indigestion, want of appetite, dejection of spirits, &c. The rheumatism has no such previous symptoms.

The rheumatism most commonly attacks strong active people, full of blood, whose fibres are strong and tense. Such a person, after being exposed to cold air, especially if attended with rains, finds himself heavy for a day or two, his stomach somewhat out of order and squeamish; he complains of drowsiness and chilliness, attended with a dull pain in the head. These symptoms gradually go off, and are succeeded by pains in the shoulders, loins, or whatever part of the body has been formerly liable to the disorder. Sometimes the patient is seized at once, without

without any previous symptoms, with very acute and fixed rheumatic pains, which are much encreased by the heat of the bed, or by cold, and the pulse is very quick. There are two kinds of rheumatism, called the hot and cold rheumatism; the one is increased by heat, and the other by cold. In the acute rheumatism, the feverishness and pain are often very intense, the blood much enflamed, the head affected with an uncommon stupor, yet the patient seldom sleeps. After the first days of the disorder there is a great propensity to sweat without giving any relief, the fever and pains soon begin to remit, and sometimes intermit, but return in the evening with greater violence, and continue till towards morning, when the symptoms abate with a sweat, and return the succeeding night with undiminished violence. The joints particularly affected are red, swelled, and enflamed. There are no chalk-stones formed on the joints, nor is the swelling so great as in the gout. In this state the disorder may continue for months, until the patient is wasted to a skeleton, and by the pain, swelling, and inflammation of the joints, is almost disabled from walking.

The rheumatic fever should be considered in the same light as a paroxysm of the gout. They are both the visible operation of nature in her own defence, and is an effort in each complaint to open the obstructions, to expel and clear the habit of the noxious matter. The struggle which ensues to accomplish that end, produces the fever, which is now an hostile action of the offending matter upon the constitution. Therefore the fever ought to be considered as an effect, not as the cause of the disease, and the primary intention of cure is not to subdue the fever; care should be taken rather to keep it up: for by attempting suddenly to subdue it by bleeding, we counteract

teract the operation of nature, and thereby lose the assistance of our best friend. If nature had been able to have forced the enemy to any of the outlets, which Providence has appointed in great abundance, as so many open doors for the evacuation of the offending matter, she would have proved victorious, and formed a perfect crisis by perspiration or some other excretion; but being unable to obtain a compleat victory, does her utmost to relieve herself, and forms an unfinished crisis by propelling the offending matter to the extremities, and lodging it upon the joints. However, the conflict should not be suffered to run too high, lest the patient be brought in danger of his life, or the constitution receive some material injury; for obstructions of long standing may wait for such an opportunity to annoy the patient. Therefore, when the fever runs high, it will be necessary to take away a little blood, not only to lessen the fever, but to prevent the offending matter being thrown too forcibly upon the joints, in case nature is obliged to form a partial crisis, because the more forcibly the rheumatic matter is propelled to the extremities, the more tedious and difficult it is afterwards to remove it. The ancient and modern practice of treating rheumatic fevers by repeated bleedings and strong purges, is certainly wrong; it not only impoverishes the blood, which produces a variety of future complaints, but converts the acute into a chronic rheumatism, which may deprive the patient of the use of his limbs, or plague him all his life. This error arises from considering the fever, not as the visible operation of nature, but as the object principally to be attended to.

In the cure of the rheumatic fever, if the pulse be full, and the fever run high, some blood should be taken away, and the body opened by a clyster or gentle dose of calomel
physic.

physic. After the primæ viæ are cleared, the Deobstruent powder ought to be given immediately, and the parts particularly affected bathed with the Tonic tincture. Dr. James's powder is an exceeding good medicine in the acute rheumatism, and is preferable to any other antimonial preparation, as it has a natural tendency to operate by perspiration. When the fever is removed, the Tonic tincture, Peruvian bark, cold bath, air and exercise, will soon strengthen the constitution, and restore the tone and elasticity of the injured parts. If the fever be low, intermittent or remittent, and the patient sweats without finding any relief from it, then the Tonic tincture is perhaps the best medicine that can be given, and will hardly fail to remove the complaint. No previous preparation is necessary. The dose must be increased till some visible effect is perceived, and the parts affected frequently bathed with the same, and then wrapped up in flannel.

The chronic rheumatism, sciatica or hip-gout, lumbago, &c. are very stubborn complaints. Here the friendly aid of a fever is wanting, which gives the complaint great advantage. When the chronic rheumatism is attended with great weakness and irritability of the nervous system, the disorder subsists from a want of tone in the vessels affected: the pulse is often weak and small, without any perceptible hardness, and the rheumatic joints feel hard and dry when the rest of the body is warm and moist. In such cases, which are frequently complicated with weakness of the alimentary canal and hypochondriacal symptoms, the bark is a well-chosen remedy; but the Tonic tincture taken internally, and applied externally, is much preferable, and is, as far as my experience enables me to determine, an infallible remedy. Every
medicine

medicine which tends to increase the tone of the system in general, and to obviate the topical debility of the affected part, is a good medicine in the chronic rheumatism. When the pain returns periodically, the same medicines may be employed with singular success. A patient subject to the rheumatism or gout should wear flannel next the skin, and continue the Tonic tincture and cold bath for a length of time.

The following are good medicines in the rheumatism.

N^o 1.

R Rad. taraxaci in mortario contus. ℥ iij
 aq. fontan. ℔i coque ad ℔ss
 colaturæ adde
 tart. solub. ʒi aq. N. M. ʒss.
 Dos. cochl. ʒ iij. cum Pil. iij. G. ammon. cujus ʒi
 f. Pil. N^o 24.

N^o 2.

R G. guaiac. in vitell. ov. solut. ℥ i.
 Aq. menth. vulg simpl. ʒ ij.
 Sal. C. C. gr. v. fyr. croci ʒi M.

N^o 3.

R Camphor. fal. nitr. pur. pulv. chil. ʒ āā ss.
 m. g. tragacanth. q. s. f. Pil.

N^o 4.

R Julep. e camphor. sp. mindereri āā ʒ iij.
 Aq. menth. simpl. ʒi. calc. antimon. illot. ℥ ss.
 Syr. croci ʒ iss M.

N^o 5.

N^o 5.

R Aq. alexeter. simpl. ʒifs. sp. fal. ammon. gut. 30
antimon, diaphoretic. fal. absinth. āā ʒfs.
confect. Damocrat. ʒfs. M.

N^o 6.

R Tinct. guaiac. vol. ʒfs. solv. in vitel. ov. vel
m. g. arab.
deinde adde gradatim
aq. hord. ʒifs. fyr. balsam. ʒfs. M.

N^o 7.

R Mixtur. salin. ʒfs. aq. cinnamom. simpl. ʒifs.
pulv. contrayerv. compos. ʒi. fyr. croci ʒifs. M.

N^o 8.

R Sal. vol. fal ammon. ʒi. succ. limon. ʒfs.
aq. alexeter. simpl. ʒij. essent. antimon. gut. 15 ad 40
fyr. ex althæa ʒij. M.

C H A P. VII.

Of the ASTHMA.

ALMOST the whole substance of the lungs is membranous, consisting of the trachæa bronchia and vesiculæ, or air-vessels. The exterior membrane of the trachæa is said to have longitudinal fibres to shorten it, and circular fibres to contract its cavity: it has also an inward membrane extremely sensible of fume, dust, or the smallest injury; the whole cavity of the breast, the intercostal muscles, the diaphragm and sternum, are covered with the same membranes, which are affected more or less with inflation in the asthmatic fit, and on this we shall find the symptoms depend. The vesiculæ constitute the great spongy substance of the lungs, and they too have muscular fibres to contract them in expiration. An artery arises from the aorta, and spreads itself through the lungs, terminating in anastomosing capillary vessels, which open into veins in the same manner as the other branches of the aorta in other parts of the body, and the blood circulates in these vessels in the same manner as in the other vessels arising from the aorta in other parts of the body.

The circulation of the blood through the lungs is performed in the same uniform and regular manner, and by the same acting powers as in the other parts of the body. By the reciprocal action of the blood and vessels of the lungs, with the joint influence of the nervous fluid, those tides and reciprocal ebbing and flowing, so necessarily subservient to the regular disposition and distribution of the blood through the pulmonary vessels, are produced.

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The blood having received a supply from the liver, enters the lungs in a very animalized state, with many volatile expanding particles; when it has filled the vessels of the lungs, by their expansion the thorax is distended, which presses upon the pectoral muscles, erroneously supposed by their action to produce the distension. When the pulmonary vessels are thus fully extended, they press upon the air-vessels, and a great quantity of the most animalized particles of the blood, mixed with the volatile effluvia or vapour, by their expansive force, make their way out of the lungs, and rush through the trachæa into the atmosphere, which eases the distension and enlargement of the lungs; then the pressure of the external atmosphere forces the air into the lungs, and distends these air-vessels, which act as temporary vacuums to continue the flux and reflux of the air into the lungs. The pressure of the air upon the surface of the body cannot for any time counterbalance its pressure upon the surface of the lungs, because of the constant ebbing and flowing of the blood to and from the lungs. As long as the blood continues to circulate, the lungs, and all the other viscera of the body, must incessantly vary their condition, and death only can put a stop to this alterative state. Sudden fear may produce a temporary cessation from motion, but an entire extinction of the vital principle can only perpetuate that rest.

The whole of this compound motion is called respiration; when the air is passing in, it is called inspiration; when it is thrown out, expiration. This is erroneously said to be performed by the action of two sets of muscles, one set enlarging, and the other contracting the thorax; whereas those muscles are entirely passive agents, and receive their motion from the action of the lungs. If

respiration depended upon the action of the pectoral and abdominal muscles, they must be convulsively affected in the asthma; then we should observe them to move with twitching as in hysteric fits, and such stops in breathing are always a sign of convulsions. But no twitching or spasmodic stops are observed in the asthma. An inflammation of the pectoral muscles or pleura affects respiration from their vicinity, and as any other feverish inflammatory state of the blood would do, not from any active power or influence they exercise over the lungs. An obstruction and inflammation of the liver affect respiration, not from any share it has in that office, only from its pressure upon the lungs, which impedes the due expansion of their vessels.

One design of respiration is to prepare the blood and chyle for circulation and nutrition by solution, and by a more intimate mixture of their parts. The circulation of the blood through the lungs commenced upon the birth of the foetus, when respiration also began. The blood, upon its emission from the right ventricle of the heart, has a visible admixture of chyle and lymph, and is a heavy, black, grumous, loose, and heterogeneous mass. In its passage through the lungs, by their action in respiration, it is converted into a more homogeneous fluid, drops its black, assumes a more florid colour, and acquires a greater compactness, though the globuli are more divided. In the heart the mixture of the chyle and blood is imperfect, and ill prepared to make its passage through the finer vessels, where it would be very apt to stick. Therefore it was absolutely necessary that this mass of chylous blood should make its preparatory circulation through a part composed of small vessels full of bladders, or air-vessels, which easily yield to its circulation;

tion ; and the blood by that means sustains such a change, as to qualify it for its next intended course through the arteries and minute vessels.

Another great and important intention of the circulation of the blood through the lungs, is in order to engross a portion of fresh common air, at each inspiration, in exchange for an equivalent portion of the most volatile effluvia of the blood, exhaled from the lungs at every expiration, which could not be so conveniently discharged any other way. In the lungs there are a set of air-vessels containing air. These air-vessels consist of a pipe, called the trachæa, one end of which opens into the throat, and communicates with the atmosphere by the nostrils and mouth ; the other end divides into branches, which go to every part of the lungs, and whose ends open into small cavities or cells. The air in the lungs is generally in motion ; for either that which is at present contained in the cells is passing through the trachæa into the atmosphere, or a fresh parcel is passing from the external atmosphere through the trachæa into the cells.

Every organ, when diseased, impedes the vital action of the animal œconomy, in the same way and manner it promoted it before. Various causes not properly asthmatic may interrupt a regular respiration. Respiration depends upon the heart ; and there is as great a connection and analogy betwixt the pulse and respiration, in their systole and diastole, as between the contraction of the heart and pulsation of the arteries. For as the heart, by its shocks upon both the solids and fluids of our bodies, gives an additional vigour to the animation and disposition of the whole, and causes those perpetual collisions which irritate and invigorate the living flame that glows in every part, and at the same time promotes the due mixture of the

fluids, so respiration continues the same process through the lungs. The contraction of the heart and pulse alter respiration. Fevers, inflammation, and every disease producing an unnatural irritation, also great lassitude and relaxation, sudden fear, &c. affect the breathing. If the constitution be full of blood, and by any accident or irregularity the blood becomes much heated, rarified or fermented, the heart contracts fast, the pulse beats quick, full, and oppressed, then the lungs are soon filled with blood, unnaturally exalted and rarified, which occasions full, great, and long breathing. If the blood be ill-conditioned and improperly assimilated, the heart contracts quick, the pulse beats hard and quick, and respiration is thick and fast. If the strength be much exhausted, and the fever still continue, the heart contracts weak, feeble, and fast, the pulse beats small, frequent and hard, and respiration is short and fast. Again, if the constitution be weak, relaxed, and feeble, without fever and inflammation, as is often the case in nervous complaints, the heart contracts slow and weak, hardly to be perceived, and at other times throbs and palpitates, in order to recover the lost vigour of the nerves, and the re-action of the solids and fluids; the pulse beats weak, soft, slow, and trembling, the respiration is rare, and the intervals between inspiration and expiration are long. As the contraction of the heart declines in vigour, so does respiration diminish in strength, and vice versa. If the breathing be with trembling, 'tis a sign of weakness, as in the palsy. If the breath be suddenly stopped, it is by the convulsion of the pneumonic muscles or diaphragm, as in the hysteric apnea. All these different states of respiration go under the common appellation of difficult breathing, though they are not asthmatic.

In the asthma there is always a high, slow, rare, and laborious respiration, with wheezing. The acuteness of the pain and inflation make the respiration small, because the breast cannot be distended as in pleurisy: 'tis also dense and quick, from the feverish pulse and rarified state of the blood. An inflammation, tumor, abscess, and all obstruction of the blood-vessels, give a stop to the motion of the blood through the lungs. If the constriction from the tumor, abscess, or inflammation, be great, respiration is with much difficulty, and wheezing; if it be less, the wheezing is not so perceptible. The air-vessels being straitened or pursed up, make the inspiration small, the labouring and straining to get a full inspiration makes it high, and the stop, constriction or compression, makes it slow. The thorax seems to feel the weight and pressure of the atmosphere, because the air cannot be received into the lungs in sufficient quantity to counterbalance the pressure of the external air. The asthmatic cannot cough, sneeze, or speak easily, because a sufficient quantity of air cannot be drawn into the lungs to produce those actions, as inspiration and expiration are both difficult and painful. He cannot move quickly, because in all strong motions 'tis necessary to keep in the breath. We may therefore properly describe the asthma to be a difficult and laborious breathing, with wheezing. The seat of the complaint is in the lungs. The old, phlegmatic, weak, lax, fat and unwieldy, are most subject to this complaint, which prevails most in wet foggy weather and very rainy winters.

The asthma is either continued or periodical, or a symptom of other diseases: it has, in common with all other diseases, diurnal exacerbations, and is greatly influenced by the weather. Some people are born with

weak lungs, and are upon that account more subject to the asthma. Its paroxysms may be occasioned by irregularity in eating or drinking. The asthma arises from external and internal causes. The external causes are, cold air, external compression of the chest, violent exercise, damps, poisonous exhalations, drinking cold water, or bathing in cold water when the body is very hot, will occasion a sudden stagnation of the fluids, and a coagulation of the chyle in the lungs, and produce an asthma. The internal causes common to the continued and periodical asthma, are an inflation of the stomach, an ebullition and rarefaction of the blood, an inflation, obstruction, straitness, compression or rupture of the bronchia and its membranes or air-vessels, or some elastic vapour or defluction of serum upon the nerves of the brain or lungs. In the continued asthma the causes must be constant, and arise from a great variety of primary causes, as an inflation of the stomach and intestines from indigestion, and from bad and ill-conditioned chyle, volatile effluvia forming an elastic mass, a windy tumour or tympany of the lungs, dropsy in the breast, an empyema, inflammatory tumour, abscess or tubercles, a polypus in the pneumonic vessels, heart, stomach, &c. known by a palpitation of the heart and very irregular intermitting pulse, will occasion difficult respiration, a coagulum of blood, or varicoseness of the vessels, a plethora from obstruction of the menses, metromania or hemorrhoids, occasions an oppression of the lungs from a compression on the bronchia and vesiculæ by the fullness of blood overstretching the blood-vessels; and if the obstructions are suffered to continue long, a confirmed asthma will be the consequence. All plethoric habits, where there is a great redundancy of blood, are liable to an oppression of the lungs and
difficult

difficult breathing from the same cause. Issues, sores, ulcers, or the itch, repelled or injudiciously dried up, an adhesion of the lungs to the diaphragm, pleura or pericardium, stones formed in the trachæa, cachexy, narrow or deformed chest, great relaxation by overstretching and straining the lungs by violent exercise, inflammation, indolence, and lying much in bed, with gross and plentiful eating and drinking, &c. The periodical asthma agrees with the continued in the same common causes.

In the periodical asthma, the returns depend on the defluxion of humours on the primæ viæ, where the inflammations begin, or upon the lungs, nerves, and brain, if either were formerly weakened by other diseases, as immoderate bleeding, inflammatory fevers, ague, small-pox, measles, gout, scurvy, obstructions of the liver, large quantity of mercury, relaxing medicines, purging, salivation improperly conducted, inflammation of the lungs, a spurious peripneumony from an old and neglected cough, hysteric fits, intermittent fevers, changes of air, a catarrh or defluxion of sharp rheum upon the lungs, a collection of flatulent, slimy, and ill-conditioned matter in the stomach from indigestion, which occasions an inflation of that organ, and also of the lungs, and an effervescence in the blood, which is the true periodical flatulent asthma. For a rarefaction of the blood, and redundancy of wind, flatus, or effluvia, and a similar tendency in the nervous fluid, which, arising from the blood, receives its good or bad qualities from thence, give the chief disposition to the fits of the true asthma. Hypochondriac, pneumonic, and nervous inflations, all depend upon the same defluxion of serous viscosity first collected in the alimentary canal. In old asthmatics they all frequently happen at the same time. This defluxion evi-

dently

dently appears in loose stools, great spitting, drowsiness in the beginning of the asthmatic fit, and the detached effluvia or wind occasions frequent belchings. If the asthma has been occasioned by salivation, or the injudicious use of mercury, the head and brain are first affected, and the patient feels himself heavy, and his head and glands stuffed and full, as if he had caught a violent cold, soon after the defluction falls upon the lungs; its descent upon the lungs is known by frequent sneezing before the difficulty of breathing comes on, which is a sign that the defluction is moving from the head to the lungs, and that the head will be soon freed and the lungs affected. There may be a periodical defluction upon these relaxed vessels without affecting the lungs for some considerable time, and perhaps not at all.

This defluction arises from a rarefaction of the humours by unnatural feverish heat subsisting at that time in the body, which rarifies the fluids, and propels them in greater quantity upon the glands than they are able to secrete. The lymphatic vessels become too much distended with serum. The consequence is, a large portion of elastic vapour is detached, which in a healthy state of the body is mixed with every portion of the blood, and is employed in dividing it, and forwarding its progressive and uniform motion, and preventing the homogeneous parts from associating or combining, as they are apt to do. Portions of this elastic steam or effluvia are apt to collect by themselves into an elastic mass, and very suddenly to coagulate, or otherwise stop up the course of the rest of the blood. Its elastic force, in endeavouring to expand itself, bursts some of the small ramifications or vessels of the lungs. The acescent part of the blood in the arteries and finer filtrations of the arterial circulation is not duly mixed

mixed with the more volatilized fluid or red blood in the veins, which, by a few circulations, becomes highly animalized, and tends to resolution. This commixture or blending together not being so properly performed as to dispose them to that common elaboration or influence upon each other's different qualities, which renders the whole mass fit for and more susceptible of the various changes and secretions it is intended to undergo in its course, the secretions are therefore irregular, and similar parts form an union and produce obstructions in some of the finer vessels of the lungs, which become filled with tubercles, the red blood, not being supplied with a proper quantity of acescent fluid from the arteries, and the volatile effluvia not serving as a proper menstruum, after a few circulations, becomes so much animalized as to tend much to dissolution, and to affect the rest of the blood with the same disposition; and if it be obstructed in its passage through the lungs, it soon runs into dissolution or putrefaction, ulcerates and consumes the vessels.

In the asthma the heat and rarefaction are not so great as in the consumption; there the solids are not so soon dissolved, nor is the blood so universally affected in the asthma as in the consumption, which may be called a general asthma of the whole constitution. The asthma differs from a consumption or inflammatory fever in the slowness of the fermentation or ebullition of the blood, and the viscosity of the fluids, which is the cause of the obscure heat, and quick, though oppressed, pulse. The head-ach is not so acute, because the circulation is not so rapid; therefore the obstruction and inflammation are not so great in the brain. When the fluids, towards the end of the fit, are a little depurated, and somewhat eased of their viscosity by the expectoration of the viscid redundancy,

dundancy, which clogs the circulation, the water has a feverish high colour.

In the spasmodic or hysteric asthma there is no defluxion upon the glands of the lungs till it has been of long standing; but there is the same rarefaction and flatulency of blood, the same irregular circulation, assimilation or mixture of the fluids, as in the moist or spitting asthma. In the one the defluxion falls upon the brain, stomach and bowels, in the other it falls upon the lungs.

The causes which dispose to the asthma are such as produce a laxity in the fibres, acidity and flatulency in the bowels, and an accumulation of matter which ought to be discharged from the lungs in expectoration. These causes concur to load the bronchial vessels, to weaken their tone, and to straiten the chest; hence the contraction and dilatation of the lungs are interrupted, they yield too readily to the force of the air, which is drawn in by inspiration: these reciprocal motions are imperfectly performed, and too quickly repeated; the bronchial vessels, by a continued operation of the same cause, are at length so much injured, as to be very easily affected by the different changes of the atmosphere; the disease becomes habitual, and the lungs are in some constitutions of air too much contracted, and in others too much dilated. Some find themselves more at ease in a town, and others in the country, yet the cause of the disorder is the same in both; that is, the bronchial vessels have lost their proper tone, and are deprived of that elasticity which is absolutely necessary to their being adapted to the different regions and situations, and to the different conditions of the air. The debility of the vessels occasions such a sensibility, that heat, damp, and the smallest change of air, instantly affect them.

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The periodical fits of the asthma generally return in spring and autumn, and especially in moist weather, accompanied with east and north-east winds; when the weather is variable, and the mercury in the barometer fluctuating, but generally low; and when sudden changes from frost to thaw are frequent. Very hot weather is likewise prejudicial to old asthmatic constitutions.

As the nervous fluid is secreted from the blood, it certainly receives its good and bad qualities from thence; and though it is an inconceivably fine fluid, yet as it is matter, it must certainly exist in different states of goodness, according to the condition of the fluid from which it is secreted; therefore the nerves which supply the lungs and parts employed in respiration, partake of the viscid flatus predominant in the blood of an asthmatic person; and as we must reason from things obvious to our senses to things more remote, we may conclude that the nerves going to those parts are relaxed, and having their cavities enlarged, are too open for the admission of a large quantity of those flatulent spirits; and being inflated, they produce a rigidity in all parts to which they communicate their influence. But the animating power diffused over the body by the nervous influence is in proportion to the elasticity and degree of preparation in the solids to receive it; therefore the nerves and muscular fibres of the lungs being also weakened by the antecedent cause of the disease, the nervous influence upon those parts must be proportionably weak, the flux and viscid flatus are pre-determined to those parts, and the disorder appears in form of an asthma.

Relaxation produces a vicious sensibility and rigid inflation. This may be illustrated in a variety of examples. The common and venereal priapism arises from inflation, and

and may serve to explain the nature and cause of the asthma. A windy vapour inflates the membranes of the penis in sleep, and by stopping the circulation, produces a stiff and rigid inflation and erection. This happens most frequently when the parts are relaxed by infection, or by any venereal act or idea dwelt upon till the parts, by a long erection, become relaxed. We likewise see that a local relaxation will produce an inflation of those parts without affecting the rest of the body; just so it is with the nervous fibres of the lungs. There are no true muscles, only nervous fibres, in either part, to produce this inflation: the stiffness of the muscular membranes of those parts is not a convulsion, for that is transient, but a true inflation, which may remain a long time. Damp, moist air, occasions a difficulty of breathing, by inflating the stomach and pneumonic membranes and nerves; for at that time, and before rain, which also affects the breath, the pressure of the air is weakened, and the changes of the weather commonly happen about the full and changes of the moon, which shews the influence of the moon upon the weather. The asthmatic is particularly sensible of those changes, and is most affected before a great fall of snow; then the spirits are very restless and uneasy, and wandering rheumatic pains become very troublesome. Damp houses, fenny countries, easterly winds, which bring moist vapours, and great windy storms, which alter the pressure of the air, bring on a fit, or a tendency to one; but these fits are generally short, and confined chiefly to the primæ viæ, and two or three loose windy stools, and a little spitting, set all to rights. Heat weakens the pressure of the air, relaxes the body, and volatilizes and expands the fluids; therefore the heat of the sun, fire, cloaths, bed, crowd of people, and a hot
room,

room, give a disposition to an asthmatic fit, which is always worst and longest in summer. In short, no change or alteration happens in the air without producing some change in the nerves and animal fluids, especially in asthmatics. The air being admitted into the lungs, and every where compressing all the external parts of the body, according to its several degrees of weight and pressure, must affect the spirits, which are also of an elastic quality, and expand themselves the more the external pressure of the air is abated, which occasions a flux of serous flatulent humours upon the primæ viæ, which rarifies their contents, irritates and inflates the membranes, and occasions such distension as impedes the motion of the diaphragm, and affects the breath: though some asthmatics have their fits only at one season of the year, while others have no asthmatic symptoms except when it thunders and lightens, which never fails to occasion a very severe fit. The incumbus or oppression, which sometimes seizes people in their sleep, and disables them from moving hands or body, and almost from breathing, is not unlike the asthma. Inflation is the cause of both. The incumbus arises from an inflation of the heart and brain, but being momentary, and leaving no bad effects, merits little attention. The common cause of the incumbus is going to bed with too full a stomach, or too soon after eating, which occasions a momentary stagnation of the chyle through the lungs and heart, from the inflation of the nerves. When the windy flatus is discharged by the efforts of nature or assistance of art, the asthmatic fit goes off, and the patient spits plentifully, which plainly proves that inflation, produced by debility, is the cause of the asthma. The tympany, or windy dropsy, which arises from a windy inflation of the belly, may by analogy explain

explain the preternatural state of the fluids in the asthma. Windy inflations affect the abdominal viscera alike in both, which make the parts stiff. All hot liquors increase the inflation in both, and cool things mitigate the symptoms. The stiffness, rigidity, and constriction of the solids, and every other symptom of the asthma, arises from debility and vicious sensibility, an imperfect concoction of the food in the stomach, a mucilaginous windy disposition of the chyle, a pituitous lentor of the blood, and soapy disposition of the lymph and serum, which are generally redundant from obstructed perspiration, &c. and being put in motion by a febrile heat, or sudden motion and agitation of the humours, are thrown upon the lungs faster than they can pass off, for viscid humours never pass freely through the extremities of the arteries, and being there more and more congested, they gradually obstruct the pulmonic vessels. This pituitous lentor of the fluids does not afford a sufficient supply of animal spirits to actuate the vessels, and to influence the circulation, so as to carry it on regularly. The pulse is weak and low, the heat small, and the urine pale and crude.

A recent cough, and difficult breathing from cold, may be considered as the lowest degree of a peripneumony and peripneumonic asthma, and an old neglected cough as the beginning of a consumption. It is at first without stertor, but by long continuance the nervous fibres and membranes are strained and disposed to asthmatic inflations. And from this cause the common peripneumonic humid or spitting asthma arises, and is attended with much spitting as the fit goes off. By the constriction of the bronchia in the fit, the circulation of the blood and chyle is retarded, and the inward membrane of the bronchia being glandulous, some of the chylous mass is forced through

through the glands of the membranes in the trachæa, and occasions the slimy spitting in the asthma. It evidently appears both by colour and consistence to be of a chylous nature. Obstructions of the lungs are succeeded by tubercles, which making the cough and difficulty of breathing worse, at last tear and ulcerate the organ. The lungs of all persons, dying of the peripneumonic spitting asthma, have been found, upon dissection, to have tubercles, schirrosities, or ulcers, and they frequently turn to an abscess, and that into an empyema, which is a collection of matter in the cavity of the chest, and succeeds the rupture of a vein, or vomica sanguinea, or breaking of an imposthume in the lungs, which oppresses the lungs as a dropsy does, hinders their expansion, and occasions a fatal asthma and sudden death. Small tubercles alone will not produce the asthma, because all consumptive people who have them, are not asthmatic. The lungs in asthmas sometimes adhere to the sides which occasion short breathing upon the least motion. This asthma depends originally on a fever, and usually terminates in a consumption, which is not easily cured. The fits come on suddenly, and without any sense of matter collected on the weakened glands before the asthmatic fit, but it flows through them in the fit. So that an inflammation of the lungs does not produce the asthma in all persons, but only the spitting symptoms where the blood had a previous disposition to that complaint, or it occasions large tubercles. Though the load at the breast is very great, the breathing difficult, and the cough troublesome, yet the fever and heat are often small, sometimes scarce perceptible; the pulse either quick, weak and small, or sluggish and oppressed; so that the asthma has very different and almost contrary symptoms to those

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of

of a true peripneumony in several respects. It arises from very opposite causes, and in some respects requires some variation in the method of treatment. A cachexy which arises from an extravasation of ill conditioned serum, irritating the nerves, obstructs the circulation of the chyle through the lungs, renders it viscid, and produces an asthma. In a catarrh, where a thin rheum falls upon the fauces and trachæa, which are deprived of their mucus, and rendered very sensible of irritation, the passages of the glands are enlarged, and disposed to receive any flux of mucilaginous slime upon any unnatural fermentation of the fluids, and asthmatic symptoms appear. But a redundancy of phlegm in a catarrh will not produce an asthma where the constitution is not previously disposed to that complaint. When a long catarrh has produced large tubercles in the lungs, which it always does, the tubercles oppress the bronchia, and occasion a perpetual asthma. In the scurvy, when the blood is so dissolved, that the serum becomes sharp and acrid, and affects the nerves with its quantity and quality, a great straitness of the breast, and other asthmatic symptoms, are produced. Obstructions of the liver and other viscera will occasion asthmatic symptoms. The gout too and dropsy often end in a fatal asthma. In dropical habits the cachectical serum fills the lymphatics of the lungs, distends them into hydatides, and occasions an asthma. They frequently break and fill the cavity of the breast with water; then the legs swell, and the patient is in danger of suffocation when he lies down: he has a slow fever, great thirst, dry cough, fainting fits, great anxiety, and dark complexion. If the patient has a constant asthma upon the least motion, and is very drowsy, with giddiness, there is reason to believe that a collection of watery matter is
formed

formed in the head and breast, or that the fibres of the air-vessels are strained or ruptured, and admit air into the membranous interstices, which will produce an inflation of the whole substance of the lungs, and a continual compression of the air and blood-vessels will occasion a constant asthma.

The first symptom of an approaching fit is a great straitness and sense of fulness about the pit of the stomach two or three hours after dinner, and an insipid ructus or belching of wind. The complaint does not long remain confined to the stomach, but soon passes into the blood, where it produces an unnatural fermentation and hurry in the circulation, the patient feels an inward burning heat and becomes feverish, cannot bear hot liquors, warm or close room, or even the heat and pressure of the bed-cloaths, is very much inclined to sleep, though he can procure no refreshing rest; he yawns and stretches, feels great pain in the calfs of his legs, the limbs appear heavy and unfit for motion, a dull heavy fulness, with an obtuse pain in the head, as if much stuffed with fumes or serous humours, and the hind part feels numbed: the patient makes a great quantity of pale water in the beginning of the fit, which, after some time, becomes very high-coloured; a general lassitude and uneasiness seize the whole body. By and by the blood becomes rarified, and the volatile effluvia or vapour, not being properly mixed with it, detaches itself from the mass of blood, distends and inflates the lungs and their membranes, which feel rigid, stiff, and enflamed: the breast seems full, heavy, and oppressed, the patient sucks in his breath with a wheezing noise, and has a convulsive kind of cough with sneezing, but spits very little at first; when the straitness goes off a little, then the spitting begins, which shews

that the tightness and oppression do not arise from the quantity of phlegm, but that the redundancy of phlegm is rather the consequence of the oppression. About one or two o'clock in the morning the diurnal paroxysm begins, and the patient is awaked by the asthma. The breathing at first is very slow, but soon becomes strait, and the patient feels stiff, as if his breast was tied round with a cord. He labours and strives to enlarge the cavity of the breast, to give the lungs sufficient room to play, that the air may be plentifully inspired. This produces a great struggle in the intercostal, scapular, and lumbar muscles; the expiration is very slow and wheezing, and the patient speaks, coughs, and spits with pain and difficulty, occasioned by the stiffness and inflation of the bronchia and its membranes, which, by pressing upon the vesiculæ, contract their cavities, and occasion wheezing. The inflation of the stomach increases, and occupying too large a place in the thorax, presses the diaphragm closely to the lungs. Now the whole frame is disordered, the heat great, the fever high, the heart flutters, and the pulse is weak, quick, and unequal; the bowels work, and if the patient has not two or three loose stools, which give great relief, the bile flows into the stomach, and occasions vomiting of green or yellow matter. The hands and feet are cold, the limbs become languid and motionless, the face is pale, black, or livid, the eyes seem ready to start and shed involuntary tears, the lips are contracted and drawn into a sucking posture, the patient swallows with much difficulty, the muscles of the whole body lose their plumpness, and become shrivelled and contracted. If the fit is very severe, the head feels very heavy and aches much, and the little sleep the patient procures is interrupted by sudden catches, wild
fancies,

fancies, and troublesome dreams. When the violence of the fit begins to abate a little, and the straitness gets less, then the patient spits up a little jelly-like phlegm streaked with something like coffee-grounds, and sometimes with a little blood; after a few days the phlegm becomes viscid and digested. Old asthmatics have little discolouring in their spittings. The eyes are rather dim when the fits go off, the water becomes high-coloured, and soon after deposits a plentiful sediment. The spittings taste sweetish, putrid, saltish, or acrid. If the fit is mild, the symptoms are proportionably mild, the spitting soon comes on, and the water continues high-coloured from the beginning.

The asthma, if it be mild, may continue for years without doing any great injury to the lungs, because the plentiful spitting carries off the defluxion, and eases the vessels; but in time tubercles are formed, and in lean people, and plethoric sanguine habits, the lungs are liable to inflammation, which produces consumptions, and abscesses, empyema, and inveterate ulcers are formed, and sudden death is the consequence. Repeated severe attacks may so weaken and relax the constitution, as to bring on a lethargy or dropsy.

The fulness of the stomach and windy belching arise from an imperfect digestion of the food, and a quantity of detached windy vapour rarified by an irregular fermentation of the meat in the stomach, and is the reason of the fulness being perceived soon after dinner. The drowsiness, slight head-ach, stretching and yawning, before the fit, are like the sleepiness before a fit of the ague, and are a sign that the viscid flatus begins to affect the nerves of the brain. The exacerbations happen between one and two o'clock in the morning, because then there

is a change in the air which influences all diseases, and the patient is hot, oppressed and relaxed, by the weight of the bed-cloaths and heat of the bed, and the flatulent roapy chyle begins about that time to mix with the blood. The windy steam, by its expansive quality, distends the cavity of the stomach, and inflates its coats, which weakens their tone, makes them rigid, stiff, and irritable. As the supreme principle of animal life, which exists in every point of our frame, and disseminates its activity in sensations, volitions, &c. chiefly depends upon the action of the nerves, which assist in directing and modifying the motion and circulation of the fluids, it is impossible these motions should not be intended and remitted according to the structure of the organs, on which the nerves exert their influence. If the coats of the vessels are weaker in one part than in another, such part must of course have weaker action and less sensation. Inflation always supposes a previous relaxation. The straitness, weight and oppression of the breast, arise from the constriction of the bronchia and its membranes, which prevents a free inspiration and expiration, and occasions a wheezing and slow respiration. The irregular circulation and rarefaction of the blood produce detached masses of volatile effluvia, which blocks up the course of the blood, and occasions almost a stagnation in the extremities, which is the cause of the coldness of the hands and feet, the discolouring of the face, and the staring appearance of the eyes. An inflation of the cavities of the heart occasions its palpitation, and the larger vessels suffering from the same cause, obstruct the circulation in the capillary vessels which supply the muscles and make them shrivel up. The par-vagus sends branches to the heart, lungs, stomach, intercostal muscles and œsophagus. As soon as the
inflation

inflation in the stomach takes place, all the nerves that originate from the same trunk are first and most violently affected; therefore the heart palpitates, the intercostal muscles labour, the bowels work, the lungs are oppressed, and the patient wheezes, and swallows with difficulty. All these symptoms arise from the interruption of the nervous influence to those parts; and as the acting powers are so connected and interwoven together, and each has such a dependence and influence upon the other, that one part of the body cannot be affected by itself, without the whole animal frame sympathizing with it and sharing in the calamity, therefore the whole nervous system is disordered, and their influence upon the body is interrupted. A heaviness, restless uneasiness and rigidity, are felt over all the body, because that vivifying principle contained in the nerves is interrupted in diffusing its benign influence into every particle of the human frame. When the head is much affected, we may then conclude that the brain is affected by an interruption and rarefaction of the blood, which prevents the regular secretion of the nervous fluid. As the blood and serum arise from the chyle, they must partake of the qualities of the chyle, therefore when the chyle is flatulent, the blood must be so too. The pale water in the spit is the thinner part of the serum, occasioned by a constriction of the lymphatics. In the stone and gravel the urine is pale from the same cause. The heat is obscure, and the pain obtuse, because the fever is in a manner smothered, and the nerves strangled by the redundancy of viscid phlegm. The irregular fermentation prevents the blood from being duly mixed. The homogeneous particles unite, the windy flatus collects and forms into masses, and the viscid matter is separated from the blood, and clogs up the vessels,

vessels, particularly of the lungs, formerly weakened by the antecedent cause of the disease; the air-vessels are compressed, and the blood-vessels, from an over-distension, labour under a temporary constriction and plethora. So that every fit leaving an additional weakness, makes the next more severe, the circumstances remaining the same. The numbedness, heaviness, stupor, and wandering fancies in the head, arise from inflation, which may in time bring on a dropsy in the head. The lungs feel stiff and strait, as if they were forced upwards, and admit little air, from the contraction of the bronchia and vesiculæ. But if the patient feel as if threads, running along the chest, were tore or drawn violently across, it is a sign of large tubercles or abscesses formed in the substance of the lungs, which stretch, tear and destroy the longitudinal fibres which assist in contracting the chest in expiration. The wind, griping pains, and workings of the abdomen, arise from the inflation of the membrane which covers the bowels, and the coats of the bowels themselves, and the fermentation of their contents. The mucilaginous phlegm digesting and putrifying, loses its viscidty, comes up easier, and is the reason of the spitting towards the end of the fit. In all fevers, the heat, quick pulse, and high-coloured water, are not so observable till the fever or ferment in the blood comes to the height. Just so it is in the asthma.

As the cure of the asthma is allowed by all physicians, who have attempted it, to be very difficult, and generally impracticable, young people, they say, are cured with difficulty, in old people and hereditary asthmatics the complaint can only be palliated, and children are usually suffocated by it; therefore I may venture to infer, that either the nature of the disease is not perfectly understood,

understood, or that they have not yet found out medicines sufficient to perform a cure. If therefore the Deobstruent powder, which I recommended in a former publication, be found an effectual remedy in the asthma, and all diseases of the lungs, which it certainly is in most cases, every one must allow it to be a very valuable discovery. It may be truly recommended and warranted as the best medicine hitherto administered in all cases where the lungs are particularly affected: it gives very speedy relief in the fits, attenuates the viscid matter, and enables the patient to expectorate and spit it up easily and plentifully, removes the fever, and very soon produces a crisis; and if care be afterwards taken to brace up and restore the tone of the relaxed vessels, it will in most cases perform a perfect and lasting cure. When the complaint has been of long standing, and so violent in its attacks, as greatly to relax the parts, there will remain a constitutional tendency, which by irregularity in eating and drinking, cold, damps, &c. will break out into an actual fit; but by care and a repetition of the powder as soon as any symptoms appear, it will become more and more insignificant, till at last the complaint entirely disappears, and nothing more remains than a delicacy and tenderness of the lungs, which will render the patient more liable to that complaint than one who never had it.

In the cure of the asthma, the first thing to be done is to clear the primæ viæ, especially if the patient be costive, by injecting an antispasmodic clyster of oil, sugar, assa-fœtida, and lenitive electuary; and the same clyster should be occasionally repeated in the afternoon before the fit. But all strong purges are prejudicial at all times; purging will bring on a fit of the asthma, and never fails to exaggerate the symptoms; and costiveness is prejudicial, therefore

therefore the body should always be kept open by a clyster or a very gentle dose of phyfic, or sulphur taken before the periodical returns of the fit, and when the patient is apprehensive of an attack, will mitigate the symptoms, and do considerable service. A gentle puke of an ounce, or an ounce and a half of oxymel of squills, with an ounce of simple alexeterial water, and half an ounce of the oil of sweet almonds, given before the fit, very much mitigates the severity of the symptoms, by evacuating a quantity of crude, frothy, or slimy matter; but a strong emetic is very prejudicial, and should never be given. In great extremity, when the straitness and constriction are so great as to threaten suffocation, a little blood may be taken; but bleeding should never be practised in common cases; it sinks and weakens the patient, the power of nature and the reciprocal action of the solids and fluids are thereby weakened, and the morbid lentor increased. Bleeding can do no good in the chronic asthma; for tho' lessening the quantity of blood should render the symptoms easier, or procure a temporary remission of the paroxysm, yet, upon the whole, it has a tendency still farther to relax the fibres, and increase the general weakness of the vascular system. Dr. Smollet says, *Gravescente dyspnœa phlebotomia frustra tentata. Sanguinis missione vis vitæ diminuta; fiebat pulsus debiliior, respiratio difficilior. In pejus ruant omnia. Febris anomala in febriculam continuam mutata. Dyspnœa confirmata. Fibrarum compages soluta. Valetudo penitus eversa.* The patient should always get out of bed, or sit in an erect posture, or lean forwards, as soon as he finds the fit coming on, that the abdomen may not press upon the lungs, but rather assist to draw them down, and enlarge the cavity of the thorax. Half a pint to ten or twelve ounces of
vinegar,

vinegar, or two ounces of coffee made into one dish, and drunk in the fit, will give great relief, and wonderfully alleviate the symptoms. Strong purges or emetics given in the fit are dangerous. All hot things, as heat of the bed-cloaths, wine, and all hot liquors, as punch, warm beer, spirits, particularly brandy, warm close room, great fires, all heating and stimulating medicines, as volatile salts, acrid aromatics, foetid medicines, spirituous waters, chymical oils and all chymical preparations, solutions of ammoniacum, castor, &c. very much disagree, and if given in the fit, increase the flatulency, and threaten suffocation; for they not only increase the oppression at the breast, but also bring on a catamorse disposition; for the morbid lentor being forced in too great quantities upon the vessels of the brain, accumulates there as well as in the lungs, and occasions a giddiness, pain, and heaviness of the head. Balsam of Peru, Gilead, Tolu, and Copaiba, are of no service, but rather prejudicial; issues and perpetual blisters are of as little use in a severe fit; they sometimes give a temporary relief, but contribute little to a radical cure. Bath water, hot bath, and all chalybeate waters and medicines, are hurtful. Bitters are heating, without doing good. Flesh suppers, violent exercise, anger, fear, melancholy, anxiety, much study, offensive smells, hysteric medicines, foetid pills, hot regimen, hot pectorals and cephalics, and plaisters of all kinds, do hurt. All kinds of smoak, air of a town, dust fumes, wood and charcoal fires, are very disagreeable to the patient. In the asthma the blood is very liable to ferment, and whatever produces that occasions a fit; therefore all flatulent things, as new ale, and whatever is apt to ferment in the stomach, are prejudicial. No disease requires a lighter, more temperate, simple, and frugal

frugal diet. A surfeit, debauch, or too plentiful a meal, will bring on a fit, and always increases the severity of the symptoms. Pudding, pye-crust, rice, wheat, peas and beans, cream, cheese, nuts, oysters, all mucilaginous gums, syrups and pectorals, salt and hung meat, pickles, &c. are all of them unwholesome. Pectorals load and relax the stomach, and hurt digestion. The patient should sleep in a large cool room, and always take care to keep his body cool, and not wear too many cloaths day or night. All cool and unfermented liquors, as water with a bit of toasted bread, milk and water, vinegar whey, apple drink, water acidulated with lemon, sorrel, hips, quinces, grapes, cherries, pears, syrup of lemons, lemonade, lime juice, raspberries, syrup of oranges, are wholesome, and with water may make a great variety of palatable drinks. Cool liquors relieve the fulness at the stomach, and should be used very plentifully. The patient should live upon water-gruel, or spinnage and vinegar, the first and second day of the fit, for a temperate spare diet makes the fits less violent. He should breakfast and sup upon water-gruel, and dine sparingly upon one dish, either beef, mutton, roast veal, rabbits, poultry, with a moderate quantity of fruit and vegetables not to chill the bowels. Sago, flummery, and stewed barley, are wholesome, but water-fowl, young meat, oil, butter, or the greasy part of meat, are unwholesome. In the fit the patient should remain as quiet, and move as little as possible. At night the spirits should be composed by a gentle opiate, as spiritus mindeneri two ounces, elixir paregoric fifty drops, sugar-candy three drams, made up into a draught. In fainty fits a few grains of musk, with spiritus mindeneri and simple syrup made into a draught, is a very good medicine, or a large draught of
water

water with vinegar. Seneka given as in the following prescription, and squills, are both exceeding good medicines, but the Decobstruent powder is superior to any thing that can be given in the asthma. No medicine should be given with it, and no preparation is necessary, except to clear the primæ viæ; and if the patient be very plethoric, and the symptoms from that cause so violent as to threaten a suffocation, it is necessary to lessen the plethora by taking away a little blood. When the spitting begins, often sipping any of the following cool pectorals will relax the straitness, lubricate the trachæa, and promote the expectoration. As soon as the fit is removed, the tone of the vessels should be restored by the Tonic tincture, bark, cold bath, temperance, and gentle exercise.

The asthma often produces other complaints, and is often complicated with other disorders, then the case must be considered as complicated. The fits may be moderated till the other complaint is removed; after that proper means may be applied for the cure of the asthma. All complicated cases require more judgement and discretion in their management than simples diseases, because it may happen, that what is good for one, may prove injurious to another. If the asthmatic be seized with an intermittent fever, proper means must be used between the paroxysms of the asthma to remove the intermittent. In recent colds, where there is a great load and oppression at the breast, difficult hot breathing, cough, &c. with a strong, full, and quick, or very tense and hard pulse, in a strong vigorous person, bleeding is very necessary, which should be followed by some softening pectoral. Stones formed in the lungs produce a continued asthma, which admits of no cure. Dropsies producing

ducing an asthma are cured with much difficulty. If the patients strength be not too far exhausted, strong emetics repeated as often as the patient's strength can bear, and the following cordial diuretic may do good.

℞ Oxymel. scillitic. ℥ij
 Sal. polychrest. ℥ij
 tart. solub. ℥i
 Aq. menth. vulg. simpl. ℥vj
 spt. ℥ij
 Confect. cardiac. ℥i. M.

In the last stage of the scurvy the breath is often affected, but the complaint is then too far gone to receive benefit from any medicine. When the asthma arises from menstrual obstruction, the complaint is cured by restoring the equilibrium, and removing the symptoms by plentiful bleeding, spare diet, and restoring the discharge by uterine medicines. A polypus in the heart, lungs, &c. is incurable. The patient should avoid all hot stimulating food and medicines, live upon very spare, thin and cool diet, and move little and very gently. Sudden death is generally the termination of the complaint. If a peripneumony happen with the asthma, it is very dangerous, yet the deobstruent powder may be given with good success. Asthmatics are subject to the jaundice from the obstruction of the circulation thro' the liver. Here calomel boluses and decoction of dandylion, with soluble tartar and ammoniacum pills, will do good. If a lax or diabetes attack old asthmatics, whenever they stop, the legs swell, and the patient dies dropfical, and little relief can be obtained from medicine. An asthma produced from a collection of water in the head, is not to be cured

by

by medicine. Hysterical fits sometimes end in an asthma, which may be properly called an hysterical or convulsive asthma, as it differs from the spitting asthma. In the hysterical or nervous asthma, the disease first began in the nerves, where a constriction is made upon the blood-vessels and bronchia, and the humours stagnating increase the inflation and rigidity of the lungs by their fulness. The hysterical asthma in time degenerates into the spitting asthma. After the fluids have been often stopt in the lungs by frequent fits, the glands are filled and become scirrhous, which obstructs the circulation of the chyle, and forces it in small quantities into the bronchia, where it occasions spitting. When a spasm seizes the œsophagus, it hinders deglutition and threatens suffocation. The following cataplasm applied to the pit of the stomach, jaws, and neck, gives speedy relief.

R Theriac. venet. ℥ij
 Pulv. fol. menth. ℥ij
 — sem. absinth. ℥iiss
 Ol. mecis per expr. ℥iiss
 Spt. vin. camphor. ℥ij
 Vin. clareti qs. f. cataplasma.

In the spasmodic asthma and in the whooping-cough, when there is no plethora, after clearing the primæ viæ, the peruvian bark, given early, is often useful. It diminishes the irritability of the lungs, promotes the natural crises by expectoration, and lengthens the intervals between the fits. In the whooping-cough it tends to mitigate the violence, and to shorten the duration of the disease. The acute asthma, to which children are most subject, may be effectually removed, if taken in time, having
 first

first cleared the primæ viæ, by taking away a small quantity of blood, to alleviate the most violent symptoms, and then giving repeated doses of musk, and in the intervals spiritus mindereri with assa foetida from a dram and a half to two drams and a half, or Armenian bole fifteen grains, and half a grain of epecacoanha. If any thing more be necessary, a blister may be applied to the back, and antispasmodic clysters with assa foetida injected, a light decoction of seneka with vinegar, acrid cataplasms to the feet, and gentle antimonial emetics are very serviceable. Holding the feet to the fire gives ease in all pulmonic cases. When the complaint is removed, the constitution should be strengthened by the bark, cold bath, &c.

N^o 1.

R Senekæ ℥ss
 C. C. C. pulv. glycyrrhiz. ℥i
 Aq. fontan. ℥ss. coque ad ℥i
 colaturæ adde
 Aceti ℥ss
 Oxymel. simpl. ℥iij M.

N^o 2.

R Ol. amygd. d. ℥ifs
 Lixiv. tart. gut. xv.
 Spt. falis vol. aromatic. gut. xxv.
 Aq. fontan. moll. ℥iij. forte aget. adde
 — alexeter. simpl. ℥iiij
 Sacchar. alb. ℥i. M.

N^o 3.

R Syr. e meconio
 Oxymel. simpl. āā ℥ss
 Aq. alexeter. opt. ℥ifs
 — fontan. ℥iiij. M. f. julep.

N^o 4.

N° 4.

- ℞ Sperm. cet. ℥ifs solut. in vitel. ov. qs.
 Elix. paregoric. ℥ifs
 Mixtur. salin. ℥ij
 Aq. fontan. ℥vj M.

N° 5.

- ℞ Sperm. cet. solut. ℥ifs
 Aq. fontan. ℥iij
 Spt. nitr. dulc. ℥iij
 Syr. e meconio ℥ij M.

N° 6.

- ℞ Amygdal. dulc. ℥ifs
 ——— amar. ℥ifs contis.
 Aq. bullient. ℥ij. infunde per horas 12
 colaturæ adde
 Sacchar. alb. ℥iij
 G. arab. ℥ij in aq. font. solut. coque.

N° 7.

- ℞ Ol. amygdal. d. ℥ifs
 Aq. menth. piper. simpl. ℥ifs.
 — alexeter. simpl. ℥iij
 Spt. C. C. ℥i
 Syr. ex althæa ℥ij M.

N° 8.

- ℞ Sal absinth. ℥i
 Succ. limon. ℥fs
 Syr. capil. ℥i
 Aq. nuc. mosch. ℥ij
 — fontan. ℥i
 Sperm. cet. solut. ℥fs M.

C H A P. VIII.

Common Cold, Catarrh, Heftic Fever and Consumption.

THE CATARRH is a defluftion of ferous phlegmatic humours fecreted through the glands from the blood upon the nofe, lungs, eyes, &c. From the fituation of this ifland, and the fudden viciffitudes of weather, it may, with much propriety, be looked upon as the endemic difeafe of Great-Britain. The danger of confumptions, or the fpurious peripneumony, both fo frequently induced by repeated colds, fhould deter~~mine~~^{the} the inhabitants of this country from confidering the catarrh as a trivial complaint, and one which may be fafely neglected; on the contrary, it is a very dangerous, and often a fatal difeafe, not becaufe efficacious means of cure are wanting, but becaufe the frequent occurrence of flight attacks, leffening people's attention to it, has accuftomed them in all cafes to neglect the catarrh, 'till its effects are ftrongly confirmed upon the conftitution, and feverely felt. Colds are very frequent through the winter, when the weather is particularly wet and cold, or very changeable. They are often attended with pain in the breaft, and when neglected, become obftinately fixed, and frequently prove in the event dangerous and fatal. The patient is fuffocated with phlegm which he is not able to expectorate. They fometimes terminate in violent angina or peripneumony, or induce obftructions and inflammation of latent tubercles in the lungs, which are apt to fuppurate, and the difeafe ends in a confumption. The fpurious peripneumony arifes principally from a relaxation of the mucous glands of the bronchia or air-veffels:

vessels: there is an increased secretion of the mucus, attended with a cough, which is particularly troublesome in the morning. Dr. Gregory says, a catarrh is seldom dangerous of itself, when the constitution is sound, and the patient not far advanced in life; but when it is neglected, or continues long, it brings on obstructions of the lungs, hæmoptœ phthisis pulmonalis, and a disposition to future catarrhs. It very often attends delicate relaxed habits, which are rendered highly irritable from excess of heat, and unhappily obnoxious to the disease from the slightest exposure to cold.

One end of respiration, as I already observed, is to free the blood of a certain quantity of perspirable matter, which cannot be so conveniently discharged any other way. When the glands and membrana pituitaria are constricted and obstructed by the external cold, the perspiration by the lungs is checked, and the perspirable matter is turned inwards upon the lungs, their glands and membranes are loaded and obstructed, and soon become rigid, very sensible of irritation, and so weakened as to be incapable of transmitting the perspirable matter thrown upon them by the arterial system in the circulation. The blood is not purified and freed of the morbid and redundant particles, which in a healthy state of the body used to pass off by respiration, and the perspirable matter being retained in the body longer than, by the laws of circulation, it ought, becomes sharp and ill-conditioned, and by tickling and irritating the lungs, throw them into convulsions, which occasion coughing. The quantity of the defluëtion is proportioned to the quantity of the humours in the body. In persons of a full habit, the defluëtion is generally copious and very troublesome. This they owe to a sedentary, inactive life, and high

plentiful feeding. Their vessels are filled at all times with a load of humours, and the least stoppage of perspiration overstretches them. The defluction partakes of the quality of the rest of the fluids of the body. If the blood be much animalized and ill-conditioned, and the solids rigid and very sensible of irritation, the obstruction and cough soon become dangerous. The lungs are not the only part of the body liable to be affected with a catarrh. There is not a member, gland, or muscle, exempted from its attack. What occasions a running at the nose, will produce a cough, fever, rheumatism, pleurisy, &c. For perspiration is no sooner obstructed, than the perspirable matter exerts its force upon some other part. In the beginning of a cold and catarrh, there is commonly a slight inflammation of the mucous membranes of the nose, eyes, throat, mouth and lungs, with little secretion, which becomes more copious and less acrid as the inflammation subsides.

The general symptoms of obstructed respiration from cold, are heaviness of the head, particularly in the forehead, a heaviness and drowsiness, an inclination to rest, noise in the ears, sneezing, a running of sharp water from the eyes and nose, a diminution of the sense of taste and smell. The humour that flows is at first thin and tickling, but in a little time it becomes viscid, hot and sharp, and irritates the lungs, which by a convulsive effort attempt to dislodge the offending matter. If the fever be trifling, the matter becomes thick and mild, and comes up easily, and the patient, with a little care, soon gets well, unless he grafts one cold upon another. If the catarrhus matter be sharp and corrosive, and falls upon the nose, the nostrils will become stuffed with an acrimonious viscid matter, which corrodes and excoriates the skin.

skin, and stuffs up the nostrils so much, that the patient can hardly breathe. The nose becomes red, swelled, and painful. If the catarrhus matter falls upon the mouth, the jaws feel hot, rough and dry, the thrush, or some excoriating humour, raises blisters, or takes off the skin, which is constantly irritated with the defluction. The face is often swelled, with a good deal of pain. The humours that flow into the larynx make the patient hoarse, by clogging up the passage with gross, viscid, and ill-conditioned matter, which occasion a dry or moist cough, according to the nature of the defluction. If it be a thin, sharp, acrimonious serum, that is thrown upon the part, it fatigues the patient greatly, and neither lets him rest night or day, but keeps constantly tickling the lungs into perpetual irritations and coughings, so that the air has hardly time to enter them; and as the quantity and sharpness of the defluction increases, the cough redoubles its violence, the parts become tender, sore, rigid and enflamed, and at last the patient insensibly becomes asthmatic or consumptive, according to the nature of his constitution. When the defluction falls very plentifully upon the lungs, and occasions a great load, constriction and irritation, the patient feels a great drowsiness and heaviness, pain in the breast, difficulty of breathing, violent coughing, and danger of suffocation: the lungs are filled and distended by an interrupted circulation, and part of the obstructed matter ouzes from the glands of the membrane into the outer cavity, and so tickles them into a cough, and danger of suffocation. If the defluction tends also to the stomach, the patient loses his appetite, is troubled with flatus and belching, and if it passes into the bowels, a purging comes on. In short, which ever way the obstructed matter flows, it produces symptoms

suitable to the parts affected. If the patient be of a full habit of body, feeds high, or drinks spirits or spirituous liquors, or if he has a delicate constitution, he is in great danger of falling into a consumption. The natural disposition of the fluids to resolution and volatilization is increased, and a fever, with heat, thirst, pain, and restlessness, comes on. If it be a defluëtion chiefly confined to the nostrils and mouth, unattended with inflammation or excoriation, there is little danger; but when the lungs themselves are attacked, there is always danger; for who can tell whether a defluëtion will not produce inflammation, spitting of blood, and consumption? Defluëtions from a slight cold are commonly of short duration, if the patient takes care in time to keep moderately warm, and guard against the inconveniency of the air, otherwise he'll soon make work for the physician, and the cold, which with moderate care, abstinence, warmth, and softening diet and drink, would have come to a crisis in a few days, will, by neglect or improper treatment, occasion pains, fever, inflammation, pleurisy, peripneumony, great prostration of strength, and debility of the whole system, which years may not restore to its wonted strength. A neglected cold is dangerous to all, but more particularly to some constitutions, and people are too apt to disregard it, 'till it has arrived at too great a length. This is generally the case in all slow fevers, the patient feels little heat or thirst at first, he loses his appetite gradually, and has so few and slight symptoms, that he never dreams of a fever; he walks about in the day, and thinks himself neither well nor ill, sleeps tolerably well, is only a little restless now and then, and has so little to complain of, that he is ashamed to mention it, and call for assistance, till the disease has stole a march upon him, and

and insensibly creeping on, has taken such fast hold of his constitution, as fully to convince him of his error.

To prevent a deflection from turning into a fever, after clearing the primæ viæ, which is the first thing to be done in every complaint, the patient must keep warm, and use a thin spare diet, chiefly of water-gruel, sago, salop, turnips, spinnage, &c. and sip frequently some softening milk-warm drink; and next morning, about an hour before his usual time of getting out of bed, let him drink a basin full of tea with a small spoonful of brandy, and encourage sweating by lying some hours in bed. If he does not sweat, he should take, as soon as he gets up, a gentle dose of physic. If the pulse is hard, full, and quick, a little blood may be taken from the arm, and the body opened by a cooling clyster.

When the constitution is plethoric, and there is a degree of peripneumonic inflammation, attended with a fever, pain in the breast, and violent coughing, then there is an absolute necessity for immediate bleeding; the neglect of this evacuation at such a time leads to very alarming consequences. If the cough is obstinate, and of some continuance, and the patient complains of a nausea and loathing at the stomach, a gentle vomit of ipecacoanha and emetic tartar may be given over night, and forty or fifty drops of paregoric elixir in small white-wine whey going to bed, having first bathed the feet in hot water; next morning the patient should take a gentle dose of cooling physic. If the matter seizes the lungs, and occasions an asthmatic cough or shortness of breath, and if the patient spits up a glewy stuff without any signs of fever, or if the fever be of the low nervous kind, the stimulus of a blister applied to the back, or a mercurial purge, and gentle diaphoretic at night, as the symptoms

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require,

require, will prove serviceable. When the greatest difficulty and danger are got over, and the patient perceives the straitness and constriction removed, abstinence, moderate warmth, and cooling expectorants, such as those prescribed in the former chapter, will in a short time restore the patient to health; but it will be necessary, after the symptoms are removed, to take a dose or two of physic to clear the alimentary canal, and to carry off any plethora which may be induced upon the body by relaxation, and to obviate the debility by the cold bath, or some Tonic medicine, as the bark, Tonic tincture, &c. When the sleepiness and drowsiness still continue, the blister should be kept open a while by means of a perpetual ointment, which, with two or three mercurial purges, cooling expectorants moderately warm, thin diet, and bathing the feet at night, will happily carry off the obstructed matter, and ease the plethora; and if the patient has any tendency to perspire, a gentle diaphoretic at night will set all to rights. The lassitude and debility remaining after the complaint is removed, require the use of the cold bath, air and exercise. When the fluids are sharp and ill-conditioned, previous to the attack of the distemper, then the defluention partakes greatly of the nature of the fluids, and is very dangerous, because it soon produces rheumatic pains, pleurifies, pleuretic fevers, peripneumony, &c. In such a habit of body the patient no sooner catches cold, than he feels a chilliness for a few days, then he is seized with a pain in the side, difficulty of breathing, increased heat, dryness of the skin, and spasmodic constriction of the external capillary vessels, quick pulse, restlessness, loss of appetite and thirst. When the pain is great, pulse quick, and spirits strong and vigorous, a considerable quantity of blood, answering
to

to the age, constitution, and circumstances of the patient, should be taken. When bleeding has been seasonably used, and a sufficient quantity taken at first, then cooling physic, clysters, water-gruel, abstinence, quiet, subacid liquors milk-warm, steams of vinegar, chamomile flowers, honey and myrrh, infused in boiling water, received frequently into the lungs, and gentle diaphoretics towards the end, will seldom fail to effect a cure. Sometimes a tickling cough remains after the danger is removed, which, though it is not alarming, is however very teasing and troublesome; but change of air, exercise, or bathing a few times in the sea, never fail to remove it, if proper attention is paid to the quantity and quality of the food during the time.

Too much cannot be said to persuade people to attend to slight colds. As soon as a person discovers that he has caught cold, let him confine himself to his room, and keep moderately warm for two or three days, as the case requires. He should immediately take a dose of cooling physic, which should be repeated if any heat, restlessness, or thirst comes on. The steam already mentioned should be received very frequently into the lungs, and a thin acid emulsion of almonds, honey, sugar-candy and vinegar, made with boiling water, may be drunk every hour, or when the cough is troublesome, three or four spoonfuls at a time. The food should be mostly water-gruel. If the cough be hard and troublesome, the patient should lose a little blood. By such a method many dangerous complaints may be prevented, and a number of lives preserved, which daily fall a sacrifice to folly and inattention. If the complaint does not yield in a few days, the patient should apply for proper advice.

Having

Having now shewn how colds should be managed, and the method to remove them when they are taken in time, I shall next consider them in their more advanced state, when they have been neglected till they produce hectic fevers and consumptions.

A **HECTIC FEVER** is attended with an unnatural heat and too quick a pulse, lasting many weeks, and perhaps months, with evident marks of obstructions in the lungs. It was called so by Galen from its similitude to itself, without any feverish paroxysms, without increase, height or remission; so that the patient is not sensible of his being seized with a fever. The causes of an hectic fever are, neglected colds, intemperance in eating and drinking, bad air, sharp cutting winds, a delicate system of blood-vessels, violent emotions of mind, obstruction of the menstrual or hæmorrhoidal flux, issues suddenly stopt, scorbutic or scrophulous sores repelled, obstructed perspiration, irregular hours, and imperfect chylification. The absorbent vessels being weakened and relaxed, are unable to transmit the chyle, impure and ill-digested, to the blood. All these causes evidently act by inducing debility, irritability, and a spasmodic constriction of the finer and extreme vessels, which produces an inanition in the smaller and a plethora in the larger vessels. To obviate these effects, an effort is made in the constitution, which increases the native heat of the body, enflames the blood, and produces a fever. The blood, in this fizy state, and the imperfectly assimilated chyle, passing with difficulty, load the vessels, particularly of the lungs and mesentery; and being, by the re-action of the constitution, forcibly propelled upon the finer vessels, form obstructions, which, from the increased heat of the body, soon become putrid,
irritate

irritate the lungs, and occasion a cough and fever. If the fever be suffered to continue, the re-action increases, the obstructions, cough and fever, are exaggerated, and soon followed by night-sweats, and a hasty progress to a deep consumption.

This fever is sometimes very obstinate in spite of the best regimen. The patient should lay aside all animal food, and live upon milk mixed with water, ass's, mare's, and butter-milk, milk pottage, vegetables, brown bread, and fruit, in as large quantities as the stomach and bowels can bear, and drink water with lemon juice, crema tartar or soluble tartar, and use gentle, but very constant exercise, in a clear country air. If the fever run high, the pulse quick and hard, a pretty large quantity of blood should be taken away at first, and a gentle dose of cooling physic should be given as often as the strength and constitution can bear it. If a purging accompanies the fever, fifteen grains of armenian bole, and half a grain of ipecacoanha, may be given in common water, and repeated till the purging ceases. Then the deobstruent medicine should be given, which will seldom fail of success, if given in time. Seneka, given in the form already prescribed, is a very good medicine. The following is also very serviceable.

R Argent. viv. depurat. ʒi.

G. arab. ʒij.

tere simul in mortario vitrio ad totalem extinct.

mercurii, addito medio cochl. i.

Aq. Bristol. exacte subactis admisce sensim
conterendo

Syr. e meconio ʒi.

Julep. e camphor. ʒvj. Dos. cochl. j. h. s.

A CON-

A CONSUMPTION is a fatal and terrible complaint, which flatters and deceives the patient, who seldom applies for assistance till it is too late. A consumption is a general wasting of the whole body, and arises from glandular obstruction, and from a long-continued fluxion, falling faster upon the glands of the wind-pipe and its branches, of the lungs and other internal parts, than can be transmitted.

So complicated is the structure of the lungs, so essential are their functions to life, and so liable to injury from a variety of causes, that the cure of their diseases has ever been reckoned one of the most difficult things in the practice of physic. When they have been once injured, how many causes concur to aggravate the disorder! No part of the body is so much exposed to the influence of the external air, which is changing conditions every hour. Our weather is so variable, that we travel from summer to winter, and from spring to autumn, in twenty-four hours. How much therefore must the lungs be affected by the changes of the atmosphere, which are so sudden from one extreme to another!

A consumption differs from an asthma in some things, and agrees in many. In both complaints there is a quantity of viscid matter and wind in the stomach, the chyle is imperfectly concocted and digested, and in that state passes from the heart into the lungs, where it sticks, and produces obstructions. The asthma is a partial consumption, arising from the blood being too much rarified and animalized, which occasions an imperfect assimilation of the fluids, which have too rapid a motion; too great a defluxion falls upon the glands of the trachæa, which are unnaturally distended and obstructed; a large quantity of rarified wind or vapour being detached from the blood,
forms

forms into a separate mass, obstructs the transflux of the vital blood, and by its expansive force bursts some of the finer vessels of the lungs, which in the asthma is the principal seat of the complaint. In the asthma the patient has a stronger constitution, and was not so much weakened and reduced before the attack, nor is the blood so volatilized, and the vessels so delicate and sensible of injury, as in the consumption. The constitution being strong, and the disease not so violent, nature prevents a general assault, and confines the disorder mostly to the lungs. In consumptions the constitution is naturally delicate and weak, or brought into that state by some preceding cause. In the asthma the fluids are viscid, and the heat obscure. In the consumption the blood is highly exalted, which occasions a constant fever and hurry in the pulse, and makes the essential difference between the asthma and consumption. There is a certain degree of moisture necessary to produce putrefaction, and the due assimilation and secretion of the fluids; if that be wanting, the body will be burnt up, dried, or reduced to powder. In the consumption the heat is so great as to hurry off the moisture from the body, to dry and enflame it, and thereby to prevent putrefaction. In the asthma the heat being less, the moisture is greater, and the disposition to putrescency is proportionably greater.

A consumption takes its rise from innumerable causes. In some people there is a particular make and hereditary constitutional disposition to this complaint. People of a delicate and slender frame, whose skin is very transparent, whose chest is flat and narrow, and shoulders high, are in general more subject to this disease, than those of another make. Because the vessels of the lungs are weak and delicate, and unable long to sustain an unnatural force

force put upon them, but soon give way and break, and a spitting of blood is the consequence. The changes of the weather, and sudden transitions from one extreme to the other, are one great cause of consumptions. The stopping of some usual and necessary evacuation, as the monthly or child-bed purgations, or hæmorrhoids, obstructions in some of the chyloferous vessels, will bring on a debility of the solids, and a wasting and consumption of the whole body. Immoderate bleeding in fevers, great and unnatural monthly purgations, difficult labour, great discharge from the hæmorrhoids, or from large wounds, &c. impoverish the blood, destroy the appetite, induce a debility, and bring on a hectic heat and wasting of the body. A gonorrhœa and whites often terminate in a consumption of the lungs, unless timeously prevented and cured. If the flux be great and continue long, it wastes and weakens the body, hurts the appetite; the food is imperfectly digested, and a hectic disposition is by degrees induced upon the body. A large discharge from ulcers will bring on a consumption from inanition. Delicate women, that give suck beyond what their strength will allow, are liable to fall into a consumption. For the milk being the nutritious juice of the body, continually separated from the mass of blood by the glands of the breasts, if from weakness, loss of appetite, &c. there is not a supply of chyle sent into the blood, proportioned to the waste by the breasts, there must be an atrophy hectic heat, and other symptoms of a consumption. Bloody flux, diarrhœa, diabetes, great and often repeated salivations, a peculiar weakness of the lungs, mal-formation of the breast and lungs, either natural or accidental, old sores, fistulas, or issues injudiciously healed up, fear, grief, solicitude, too much thinking, intemperance in eating
and

and drinking, particularly spirituous liquors, want of exercise, night-watching and study, bad air, chalk-stones bred in the lungs, some preceding disorder, which had impaired the vital powers, and left the fluids in a poor state, as fevers, small-pox, measles, asthma, inflammation of the lungs, pleurisy, melancholy, gout, rheumatism, hectic fever, a relaxation of the glands and ducts of the aspera arteria, venereal complaints, any thing that renders the fluids gross, viscid, or fizy, immoderate venery, violent passions of mind, unwholesome food, &c. give rise to consumptions. The body being thus pre-disposed from any of these causes, is very liable to catch cold, which brings on a cough, and in time every other symptom of a consumption. Spitting of blood, from an accidental cause, or from the heat, plethora, and rarefaction of the blood, will end in a consumption. Obstructions of the liver will occasion a dry husky cough and leanness, a sense of weight at the pit of the stomach, with a seeming tightness around all the body, and whitish stools. This is often mistaken for a consumption, tho' it is a very different complaint, and has its seat in the liver only. It is removed by the following medicine.

℞ Rad. taraxaci ℥iij
coque in aq. fontan. ℔iss ad ℔i
colaturæ adde
Sal. nitr.—diuretic. āā ℥ij. tinct. rhei ℥iij
Sacchar. limonat. ℥i. M.

When the bile begins to come off, give every third day the following.

℞ G. ammon. ℥i. calomel. ℥i.
Pil. N° 24. Dos. N° iiij. ad vj.

A con-

A consumption for the most part begins with a cough, proceeding from a cold ; the defluſion that is generated by it irritates the membrane that lines the trachæa, together with a little inflammation that generally affects ſome of the neighbouring parts, occaſion the cough, which is nothing more than a ſtruggle of nature to open the obſtructions, and expel the cauſe of the complaint ; but in place of that, the minute and tender veſſels are broken by a continued coughing, which produces ſpitting of blood, and afterwards large abſceſſes, and the diſeaſe is terminated by a purulent hectic fever, and death cloſes the ſcene. But this, like every other diſeaſe, has different ſtages, and purſues a regular progreſſive courſe from ſlighter to more violent ſymptoms, till death at laſt puts an end to the diſpute. The cough and ſlight inflammation being neglected, or increaſed by miſmanagement, intemperance, &c. increaſe ; the ſtrength and appetite decreaſe, the ſleep is leſs reſreſhing, a ſoreneſs, pain and tightneſs, are felt in the breaſt, and in different parts of the body ; and as the diſeaſe increaſes, the pulse beats quicker and ſtronger, cold ſhivering fits come on at times, ſometimes like an intermittent, but not regular ; heats and clammy ſweats ſometimes ſucceed the ſhiverings, at other times the heat and ſweat precede the ſhivering. The violence of the cough and fever, if ſuffered to continue long, increaſe the inflammation of the lungs by their continual agitation, and the humours flying to the weakened parts, all ſerve to increaſe the diſorder. The chyle, from the weakneſs of the digeſtive powers, not being properly aſſimilated, paſſes imperfectly, and with much difficulty, through the enflamed lungs, by which means obſtructions are formed, which more or leſs diſorder the ſecretions and animal œconomy. The bronchia and glands of the lungs

in a consumption, Dr. Ruffel says, look like grains of corn full of purulent matter, pretty nearly resembling the miliary glands found in a measles hog. These obstructions, says he, may be few at first, but these few vitiate others, and arrive at a state of suppuration by degrees; and if the fever be not very high, the progress is slow; when a cluster of morbid and schirrhous glands yields to the growing tumor, the small vessels burst at last, and pus is formed. If the fever be considerable, and the flux upon the glands much greater than they are able to transmit to the neighbouring parts, their bulk proportionably increases, and the vessels being irritated by the plethora, increase the fever by their re-action; the tumified glands, which, before the fever was so great, were either schirrous or filled with a viscid, indolent humour, become true phlegmons or enflamed tumours, which increases the cough, as nature endeavours by that means to burst the morbid glands, and thereby expel the hidden cause of the tumour, that the tumified part might be reduced and restored to a healthy state. At last, by the flux, fever, and coughing, nature insensibly yields where she is hardest pressed, and the smaller vessels where the obstructions were formed, having their continuity destroyed by the distension and putrescency of their contents, burst, and pus is formed, which communicates its putrescency to the neighbouring parts, and being re-absorbed and mixed with the mass of blood, circulates with it, vitiates and alters the qualities and texture of all the fluids. Those glands that do not suppurate become hard and schirrous. Some of the larger vessels become in time materially injured, perhaps so far as greatly to impede the blood in its passage, which necessarily subjects the other parts to greater labour, as the same quantity of blood must pass

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through

through a part of the lungs, that used to pass through the whole. This weakens the other unobstructed vessels, and the momentum of the blood being increased, occasions an hæmoptœ, or, by a rupture of part of the lungs, deluges the whole, and produces sudden death. Sometimes the lungs are affected with small tumours, tubercles, or vomicas, which frequently suppurate, and discharge themselves by expectoration; some of them heal up, and leave a hardness behind; others degenerate into small ulcers, which occasion that dry cough which is attended with a frothy matter, sometimes tinged with a small quantity of blood, and very little expectoration; this happens more or less severe according to the size of the tubercle. Some people have been afflicted with tubercles many years, and by a proper regimen, exercise, &c. have lived to a very advanced age, and gone about their ordinary business with only a dry short cough, especially in the morning soon after awaking, hectic heats, leanness and suppurations, which sometimes prove very troublesome; but by living carefully and temperately, the increase of the complaint may be checked, and life may be spun out to a considerable length, otherwise it must kill the patient in a short time, because all kinds of irregularity and intemperance wear out the constitution, and under such circumstances will bring on sudden death. The hotter the food is, the blood is proportionably more animalized and enflamed, which fills and distends the vessels, and occasions a rupture where the obstructions are formed; hence vomicas and spitting of blood ensue. The necessity of a cool regimen and strict temperance appear here very conspicuous. When the tubercles begin to suppurate, they are attended with great pain, cough, want of sleep, and more or less inflammation; after the suppurated matter is discharged

discharged by expectoration, the symptoms are less severe. The patient sometimes has a chilliness, without any hectic heat, thirst, remarkable fever, or shortness of breath; the pulse is not high, but quick and soft, the cough troublesome, though not violent, the spit has a disagreeable smell and taste, often of a blueish colour and jelly-like consistence, the spirits and appetite entirely forsake the patient, who loathes every thing but liquids. In this situation, not being sufficiently alarmed, or rather being too languid to ask for medical aid, or to take care of himself, he continues for some months, until the lungs begin to shew signs of inflammation; then the complaint has a very different effect upon the spirits. In the former part of the disorder the patient had little hopes or thoughts of life, but now he gets spirits and hopes, which prove as detrimental as the former languor in preventing him from following directions. This confident hope of recovery is often beyond measure surprising, and in some cases is so great, that even a few hours before death the patient is not to be convinced that he is in danger. The distemper preserving an equal progress, the patient begins to perceive a pain in the side, though in some this symptom never appears; the spit becomes streaked with blood and purulent matter, and a hectic fever and diarrhœa, with their concomitant symptoms, coming on, close the tragedy. Towards the last the patient has some slight decipientia. For the most part, a hectic fever accompanies the complaint from the beginning of the attack, in whatever shape it appears. Sometimes almost all the symptoms appear at one time, and at other times only a few of them. The hectic fever, which is slow at first, is perceived by a small sensation of cold at different times of the day, sometimes at a particular hour, or towards evening,

evening, attended with a general languor and lassitude; the patient is much fatigued with little labour, the appetite and strength gradually diminish, and the leanness or falling away of the flesh becomes very perceptible; the sleep is imperfect, the lips become dry, particularly after meals. At the time when the chyle enters the blood, the pulse becomes quicker, the palms of the hands are hot, and sometimes moist and clammy, and the face is often flushed after eating; a cough is more or less troublesome, but mostly dry; a slight oppression is felt at the breast, which increases or decreases as the disease is more or less urgent. As the disease increases, the cold fit becomes stronger, and appears like an intermittent for a few fits together; the fit is succeeded with heat and sweat, and sometimes without either. When the external membrane of the lungs is affected, the pain is very considerable; and when the tubercles begin to suppurate, the pain is also very great; but the cough, want of sleep, and difficult breathing, are for the most part more troublesome than the pain. Sometimes the patient perceives a swelling in different parts of the body, attended with an acute pain like the gout or rheumatism, and continues for several hours, which is no doubt occasioned by an effort of nature to relieve herself of the plethora, but debility prevents her from doing it effectually; for the lungs are relaxed and greatly debilitated, and their sensibility and rigidity proportionably increased. When many hard schirrous tumours are formed in the lungs, or ulcers that dispose the whole body to putrefaction, when the spitting of blood is in large quantities, mixed with purulent fluid matter, which generally proceeds from an abscess suppurating, which is called a vomica, then the disease is advanced to its last stage, and soon makes its fatal termination. The
cough

cough is violent, the voice has a harsh sound, or the patient can hardly speak to be heard; frequent sickness and vomiting succeed the fits of coughing; there is a copious expectoration of foetid, sweet, or stinking matter, the fever is high, and from an inflammatory state is become of the putrid kind; the eyes sink, colliquative sweats pursue the patient, an oily film is found upon the urine, there is a great difficulty of breathing, and a pain in the breast and parts affected, and in the limbs; the feet and legs swell, and retain the mark of the fingers; a scrophulous humour sometimes breaks out over all the body, which shews that the blood is much dissolved, the nails bend over the ends of the fingers, and a diarrhoea comes on. These are the shocking attendants of a speedy dissolution, to which no check can be given, but a convulsion soon comes on, and relieves the patient of misery, by putting a period to his existence. Sometimes the patient has very little pain, and the symptoms not very violent, even in the last stage, except the heat, cough, fever, sweating, and loss of appetite; the other symptoms are insignificant. This leads people into a fatal delusion, for they think they are in no danger, and don't apply for assistance 'till it is too late; their danger creeps upon them imperceptibly, but having good spirits, they too often entertain no thoughts of death, when perhaps it is not many hours distant. How horrid is the condition of a consumptive person, who, in the midst of the most imminent danger, sees it not, but talks of things to be done, and lays down plans of life for years to come, at the time when his friends, and all that see him, know that there is not a moral possibility of his living many days, or perhaps hours. This melancholy complaint, and its delusive nature, ought to warn every body to regard

every cold and cough, let them appear at first to be never so slight, as a thing of the greatest consequence; for a cold and cough of any standing are the forerunners of great evils. No means should be neglected in such cases to remove the evil, prevent the destructive tendency of the complaint, and to rescue the patient from the jaws of death, which is the unavoidable consequence when the disease gets to the last stage, and sometimes it is very rapid in its progress.

When a distemper begins slowly, our attempts to get rid of it should be by slow and cautious means. Strong medicines, and those of quick operation, only waste the strength in such cases, without giving relief. In the beginning of this complaint the Bristol hot-well water is undoubtedly a good medicine, and will give a check to the disease in its infancy, but the patient is often sent too late under a cruel and wanton deception. Seneka with diuretic salt, spiritus mindereri or soluble tartar, is a very useful medicine, and will do good in the beginning of the complaint. Medicated air may likewise be of some service, but they all fail when assistance is most required. How valuable then must that medicine be, which will remove so terrible a complaint in a very advanced stage, when every other means has failed! The Deobstruent Powder is perhaps the best medicine in nature in consumptions, and in all diseases of the lungs: it very speedily removes the fever, thins the purulent matter, making it come up easily, and wonderfully cleanses and heals up the parts. There are no doubt some cases out of the reach of every human means; in such cases only can this medicine fail. The cure must be begun by laying aside all animal food, hot liquors, cordials, wine, and every thing that tends to heat the blood. Let the most

skilful

Skilful physician in the world prescribe the best medicines, if the patient does not pay proper attention to his way of living, the physician's skill will be exercised in vain; but if the patient does his part, a cure may be performed in a very dangerous and advanced state of a consumption. The stomach should never be too much distended or overloaded, nor should the body receive much nourishment. The milk ought to be mixed with water and a little honey and egg-shells, otherwise it will fill the stomach with phlegm, and increase the cough, which it is too apt to collect without any assistance. Frequent gentle vomits are necessary to rid the stomach of the viscid phlegm with which it is much loaded, and often occasions nausea and vomiting. The bill of fare during the illness should be water-gruel, turnips, asparagus, colliflowers, spinnage, without pepper, fago, salop, a very little white-fish, and that very seldom; shell-fish may be used more liberally; fruit at all times, and in large quantities, mugwort and nettle-broth, boiled barley, women's, cow's, ass's, goat's, and mare's milk, artichokes, brown bread, flummery, rice, millet, and light pudding, and eat nothing hot. No rich soup, broths, vipers, beef tea, gravy of meat, jellies, cheese, baked meat, pepper, mustard, pickles, salted and hung meats, chickens, eggs, butter, oil, rich wine, and potatoes. The drink should be lemonade, apple-drink, butter-milk fresh and well freed of the butter, vinegar whey, Imperial, Bristol water, medicated water with fixed air, milk and water, plain water with lemon and the syrup of some fruit. Goats whey is very serviceable in all stages of a consumption except the last, when the colliquative diarrhoea has made its appearance. Its opening quality makes it very improper when there is a diarrhoea, and the use of it will certainly hurry the patient

out of the world. It should never be drank in such quantities as to swell or overload the stomach, or to prove very purgative. Any purging that happens more than the patient's strength can bear, may be checked by armenian bole and ipecacoanha. The patient should chuse a pure, dry, well ventilated air, and high sandy soil, at a distance from water, particularly standing water; he should follow the plough and smell at the fresh turned up earth, live much in the fields and gardens, and near fresh earth; should take short voyages by sea, ride or walk near the sea, avoid singing, or any exertion of the voice or playing upon the flute, and wear flannel next the skin, and flannel socks; he should rise early and go soon to bed, and keep as near as possible to regular hours: the sun should be up two hours before the patient goes abroad, and he should always return an hour before the sun goes down, and in damp wet weather not go abroad at all, but use exercise in the house, and guard against the bad effects of the damps by a little fire at all seasons of the year, the middle of summer not excepted, if the weather be rainy or moist; no dancing or violent exercise, no sudden heats or colds; the exercise should be very gentle, but regular and constant, and never in the heat of the day when the weather is very hot. The patient should be in a large airy room, use few bed-cloaths, and lie with his head high; the floor may be sprinkled frequently with vinegar, &c. his cloaths should be very loose and easy, without pressing or tightning the body, especially the breast; he should avoid all passion, especially anger, venery, and vexation, and keep the mind easy and composed; sudden joy or grief do hurt, and study, writing, or any exercise that requires the body's being bent forward, are very prejudicial. The patient should avoid close rooms, or where much company resort;
and

and should never sleep with an old or consumptive person, for the breath of a consumptive person is infectious, and that of an old person is unwholesome. Gums, balsams, oil and oily mixtures, and all glutinous, viscid, or cordial medicines, are prejudicial, as they clog the stomach, already overloaded with phlegm, enflame the blood, and thereby increase the fever. But oily medicines become rancid; even fresh butter is not wholesome for a time, but when it has suffered the action of the fire, or has been long preserved in salt, it is very improper. Opium increases the fever, and renders the body costive. Matrimony to the fair sex often proves a complete cure, but without care they are liable to a second attack in two or three years after. The complaint creeps on in the second attack very imperceptibly, and is seldom attended to till it is too late to afford relief. The symptoms are often mistaken for weakness from breeding and bearing children. Pregnant women seldom die till they are brought to bed, but many do not survive the delivery many days, and sometimes not many hours. Women are often regular in their menstruation in this complaint, till towards the last stages of it; and some that were obstructed in the beginning, have a return of this evacuation towards the close.

If the pulse be hard, full, and quick, the cough very troublesome, and the heat and inflammation great, some blood must be taken away, and occasionally repeated; the quantity should be suited to the urgency of the symptoms, and the age and constitution of the patient; it is better to take a small quantity at a time, and to repeat it often, than to take much at one time. In bleeding great care and attention must be taken not to reduce the vital powers too low, for when the animal powers are too much reduced,

reduced, it will prove an extremely difficult matter to recover the patient: when that, by any imprudence or mismanagement, happens to be the case, there are little hopes of any thing being of use. Great debility and prostration of strength dispose to a vicious sensibility and rigid inflation; therefore in the cure of diseases, especially in consumptions, which arise from debility and increased irritability, there is nothing of greater consequence, or requires greater attention, than to regulate the necessary evacuations so as not to reduce the vital powers too low. The intestines should be cleansed of the colluvies by some cooling laxative, and a clyster of the same constantly injected when the body discovers the least tendency to costiveness. A little pectoral decoction may be taken occasionally when the cough is troublesome. Great benefit arises from wearing flannel next the skin: for the night-sweats arise from the perspiration being very greatly stopt in the day, and nature making a push to relieve herself, and to obviate the cutaneous constriction, in consequence of this re-action, the nîsus of the circulating fluids is directed to the surface, and a full derivation is made thither, the constriction of the cutaneous vessels is overcome, perspiration is rendered free, the paroxysm terminates in a profuse sweat, the internal viscera are relieved, and the plethora discharged by the skin. Whatever co-operates with nature to obviate the debility and spasmodic constriction of the cutaneous vessels, to relieve the internal viscera of the plethora, to make an equal distribution of the fluids over the body, and to give them a progressive course to the surface of the body, and at the same time to prevent the recurrence of the same effects from causes thus removed, will prevent the necessity for the struggle. The evening paroxysm and
violent

violent coughing in the consumption arise from the change which happens in the atmosphere, which exaggerates the symptoms in every complaint. The consumptive paroxysm generally comes on when the patient is undressing to go to bed. This happens from exposing the body to the cold air, which increases the constriction upon the skin, and exaggerates every symptom of the disease; therefore the patient should always be undressed in bed. A judicious exhibition of the bark with sulphur is an exceeding good medicine; it promotes the regular cutaneous discharge, renews the decayed appetite, and gives strength to the relaxed solids; and in the advanced stages promotes a laudable suppuration, and checks those hectic heats which so greatly waste the patient. The sulphur may be given at night, and the bark, with elixir of vitriol, spiritus mindereri, vinegar, saline draught, or sal polychrest in the day. At first this method seems to aggravate the symptoms, but in a few days the complaint takes a favourable turn, and the symptoms become much milder. If the disease be taken in time, little else will be required but a strict perseverance till the health is perfectly re-established, and not to return to the same course which brought on the disease. When this method proves ineffectual, and the disease does not yield, there is reason to fear that obstructions are formed, or forming in the lungs or bronchia; then very particular care must be taken to prevent costiveness and obstructions in the lower viscera, to remove the plethora, and to check the inflammation by gentle cooling physic and the use of the Deobstruent powder. Here the complaint admits of no delay, but calls for the timely aid of the most efficacious means.

C H A P. IX.

Of FEVERS and INFECTION.

OF all the various diseases that afflict mankind, few are more fatal, none more frequent than fevers. More die of putrid and inflammatory fevers, or a mixture of both, than of all other diseases besides. They seize young and old, man and woman, strong and weak; and many more causes unite to expose the patient to imminent danger, than in any other disease. Sometimes their attacks are grievous and sudden, and bring dissolution before the patient is well aware of the danger; at other times they creep on slowly and imperceptibly like a thief in the night. Here nature calls loudly for assistance, when (with the greatest regret must we confess it) least relief can be given. In fevers the symptoms are very various and uncertain, and seldom remain long in one state; and without experience, and much natural sagacity, a physician is never more at a loss to know the true indications of cure than in fevers; yet there are a number of circumstances which, to an experienced and skilful physician, who has a natural or acquired habit of judging, strike the mind quickly with an idea of what is proper to be done; but that knowledge can never be acquired by superficial observers, or by those who have not a great sagacity and natural turn to physical researches, nor is it possible to enumerate every circumstance which guides the physician in forming his judgment. But it must be confessed, physicians have been hitherto too inattentive to investigate the causes of fevers, otherwise some method must have been found out before this time

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to attack them more successfully, and to prevent the havock and destruction they bring upon mankind. Putrid fevers carry terror in their very name; they turn air, the support of animation, into a deadly and baneful element; they are the terrible enemy of mankind, that goes through the land collected in its strength, and armed with vengeance, sends its arrows abroad by day, and walks stained with slaughter by night; it scatters destruction and desolation wherever it directs its dreadful march. Putrid fevers poison the blood, and kill us by our breath; they fill all places with slaughter, and triumph in destruction: before them health sparkles in the eye, and luxuriant plenty, beautiful gardens, fragrant fields, crowded inhabitants, and populous cities; behind them, ghastly desolation, howling deserts, dreary wastes, and silent emptiness. Of all the calamities to which mankind are subject, putrid diseases are the most affecting, dreadful and alarming; while other diseases single out individuals, they make a general carnage, and advancing with restless fury from house to house, and from city to city, at one blow lay desolate the country, depopulate cities and kingdoms, and, like a swelling inundation, sweep away the inhabitants of the land: they indiscriminately mow down whole armies, and lay the victors and vanquished in the dust: they are fed and strengthened by the famine which they make, gather strength in their progress, despise the fences, leap over the lines raised to restrain them, and make the dead destroy the living.

As putrid diseases are of so dreadful and destructive a nature, particularly in jails, armies and navies, it rouses the attention, and produces a general desire to investigate their nature, and to endeavour to find out some means to prevent them. The importance of the subject requires

the most serious attention. In this light the parliament viewed it, when they benevolently endeavoured to find out a method to give some check to this dreadful calamity in places where it is most destructive; and a late worthy member (to his honour be it mentioned) visited the jails in Great-Britain and Ireland, and made his reports to the House of Commons. I then hoped some plan would have been proposed to save the lives of so many of his majesty's subjects as daily die in jails and camps of putrid fevers and fluxes; but as no preservative has been proposed, as far as I know, I undertake, that if the method which I should direct were followed, putrid fevers and fluxes would be as rare in camps or jails as they now are in private houses.

I have not the vanity to think myself equal, either in experience or knowledge, to the learned gentlemen who delivered their opinion last year in the House of Commons, upon this subject; yet what escapes the most penetrating geniuses, may be stumbled upon by a very ordinary capacity. It is perhaps by the direction of Providence that all useful discoveries and improvements in science are made. How often do we see what some people call accident bring to light discoveries of the greatest importance! and, to mortify human vanity, the most beneficial inventions have oftener fallen to the lot of the ignorant and illiterate than to the learned and scientific. Whoever takes a view of the vast extent of things, and at the same time considers how limited and confined the faculties of man are, and how short his life is, will easily discover how small a share of knowledge the wisest can attain; and therefore will not entertain too high notions of the extent of his own knowledge. I have often reflected that man, after all his labour in this life, must discover the imbecillity and limited
compass

compass of the human mind in all its ultimate researches, and expect to find many difficulties, and have the mortification to be ignorant of many things; for the wisest man only arrives at knowledge enough to discover that he knows little: yet as God hath created the world, and all things therein, for the benefit of mankind, men of a curious and inquisitive turn of mind will be daily making new discoveries of the nature and properties of things, as long as they confine themselves to matter of fact and experiment; but there are many great and wonderful secrets in nature which we shall never fully understand.

As fevers arise from a variety of causes, many of which are unavoidable, I concluded that Providence had certainly appointed some remedy in nature for those diseases, which neither temperance, exercise, nor peace of mind, can prevent. These considerations encouraged me to endeavour to find out some effectual remedy in fevers, particularly of the putrid and malignant kind, which at last I fortunately discovered. It will no doubt prove of infinite service, by affording relief, and lessening the sufferings of mankind arising from the calamitous effects of fevers and infection. It will never fail in all cases where the vital powers are not completely overset, and where they retain sufficient vigour to co-operate with it, and carry it through the body, to give speedy relief, or to suspend the force and progress of the disease, that nature may have time to relieve herself, while the judicious physician watches her motions, and is ready at hand to support and assist her as she directs. It is also a preservative against infection; and a person that takes it internally, and uses it externally as shall be here directed, may with safety go into a jail where a malignant fever rages, or on board a ship come from any place where the plague is.

In

In the first chapter of this book, speaking of the primary material agents in nature, I there mentioned the leading principles which directed me to the discovery. The reasoning may be erroneous, but the practice will be found to answer. All putrid and infectious matter loosens the texture of the body, removes the particles at a greater distance, lets loose the fire, and exposes the body to its action, by which means the solids become tender, soft, and unable to receive the energetic influence and action of the nerves, the blood turns to a dissolved stinking puddle, and in a manner stagnates in the vessels, because it is rendered incapable of receiving the agency of the animal spirits. They too being secreted from the blood, are not duly supplied and nourished, and the principle of animation becomes languid and feeble from inanition. Whatever assists and supports the animal spirits and the vital principle of the blood to throw off the most putrid parts, to depurate the juices, to check the progress of the sceptic ferment, will prove of eminent service in forwarding the two principal intentions to be pursued. Whatever invigorates and enlivens the spirits and the active principle of life, that they may be enabled not only to perform their vital office in subduing and expelling the putrid matter, but at the same time to deaden and extinguish the raging fire, and restore the structure, coherence and connection of the solids and fluids, must in all possible cases effect a cure in malignant and infectious diseases. This medicine seems to act in that way, and is infinitely preferable to bark and red wine, the two best medicines, in such cases, known in common practice. I do not call it an antidote or specific remedy in these complaints; the best medicines do not promise immortality, and sometimes the best method and
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most effectual medicines that can be used, prove ineffectual, and notwithstanding all that can be done to relieve the patient, the disease becomes fatal: all I undertake is; that it shall seldom fail to remove the complaint, and assisted by proper regulations, some of which shall be here mentioned, prove a very effectual means of protecting particular persons, as well as guarding the community in general from contagion; and when it does happen, shall be far from being virulent, and rarely produce, except in an instance now and then, a fixed fever. It prevents infection by forming a medicated atmosphere of a certain dimension, from whence it propels the putrid particles, and does not suffer the ingress of any fresh supply, 'till it has lost its strength and virtue, and by strengthening the internal viscera, prevents the action of the sceptic matter upon the stomach. It removes the infection in the body, not by any inherent specific quality, opposite to the nature of putrefaction, as an alkaline salt destroys an acid, but by acting upon the body as I have just now mentioned. It is particularly useful to people when they first go into hot countries, to prevent any infection from the climate, and will at all times prove singularly beneficial in such countries, and in an unhealthy state of the air at home. It is so friendly in its nature to the body, that by the outward application of it, it heals, in two or three dressings, fresh cuts, lacerations, gun-shot wounds, and sores of any kind, even stubborn cancers.

Physicians, in treating of fevers, have divided and subdivided them in such a manner as to perplex and confound the reader, in place of giving him a distinct and true idea of them. I shall pay no regard to these endless distinctions, which are as unnecessary here as in any other disease, but pursue the method I have observed through

the whole of this performance, take nature for my guide, and stop where I find I can go no farther upon sure grounds.

Fevers are either putrid or inflammatory, and arise from whatever disorders the animal œconomy, impedes the free circulation of the blood, and destroys the harmonious and reciprocal action of the solids and fluids. Even the division of fevers into putrid and inflammatory, when we consider the nature of them, will be found unnecessary; for the inflammatory, bilious, putrid, camp, jail, hospital, malignant and petechial fevers, receive their diversity from the constitution or state of the body, and the degree of offending matter. Most fevers are more or less infectious; even in inflammatory complaints there is some degree of infection, which in gross habits of body is very perceptible. The plague is the highest degree of putrefaction, and is a terrible disease indeed when it has arrived at its utmost degree of virulence, which (blessed be God) can seldom, if ever, be the case in this kingdom, except it be brought to us from some other country, though we sometimes meet with malignant fevers little inferior in their degrees of virulence to the mildest species of the plague. When infection has arrived at that degree of virulence which we see in the plague, it instantly extinguishes the vital spirits that regulate and support the animal œconomy, and the blood is converted into a putrid puddle; then the enemy is often too powerful to be resisted, devastation and ruin attend its steps, and the air, the principle of life, is converted into a principle of death: it then passes triumphantly from house to house, and from street to street, 'till it depopulates whole cities, and lays a country desolate: and as infection, that dreadful source of disease, is not confined to fleets,
armies,

armies, and jails, but people in all places, and under every circumstance, are liable to it, it must be of the utmost consequence to mankind to point out a method of defence, that will fortify the constitution, and render it little subject to so dreadful a calamity.

That fevers do not differ in their nature and essence, but in their degree, and the number of causes uniting in forming them, is evident from malignant fevers, which have all the symptoms common to the plague, only in a smaller degree: they are certainly of the same species; and whoever is acquainted with the nature of putrid fevers, is qualified to treat them in all their different degrees of contagion. The particular properties that distinguish the plague from other malignant fevers, of which it is the principal, are its superior, more active and powerful contagion, and more destructive influence; and the malignity, degree of severity, and danger of the subsequent sickness or fever, depend on the quality and specific nature of the source from whence it is derived: for in some cases, as in the plague, the source of contagion is more concentrated and poisonous; but the number of infected is not always in proportion to the virulent energy or strength of the source, because greater numbers have been known to be infected from a very mild contagion, than where the infection has been of a very violent nature; so that the number of infected depends upon the disposition and habit of body of the people exposed to the infection, but the danger of mortality will always be proportional to the strength of the poison. The malignant and infectious diseases, to which the inhabitants of this country are liable, except in jails, camps, and hospitals, where the infection is indeed very virulent, single out individuals, and partially injure the vital principle of life and cementative virtue contained in

the air; but the great contagion that accompanies the plague, proceeds from a much higher degree of solution of the blood and humours than that in other fevers; and this grows gradually higher and higher till the whole mass is corrupted, and then the structure of the blood is by the putrefactive ferment so far dissolved, that there is no coherence or continuity of parts, the contagion becomes strong and ultimately virulated, and being very active and volatile, it flies through the air, and sometimes maintains its fatal influence in despite of all opposition. I cannot take upon me to say what effect the method here recommended would have when the infection is ultimately virulated, as I have never had an opportunity to make any experiments in such cases; but in the infection commonly met with in this country, I undertake that it shall seldom fail to be successful in effectually preventing the lodgement or formation of infection, in purifying all tainted places, materials and substances, and in curing those that are infected, if the vital powers are not so impaired, and the whole animal œconomy so completely overset, that no reasonable man can expect benefit from any human means.

Fevers changing into one another, and being cured by the same remedies, are a proof that there is not so great a difference in the nature of them as some physicians suppose. The nervous continued fevers change into putrid, and are cured by the same remedies. In the first there is a greater constitutional debility antecedent to the attack, less contagion in the noxious matter, and less putridity in the habit. The putrid effluvia generated in camps, hospitals, jails, or wherever men are crowded together in dirty, confined, and unventilated places, will produce putrid fevers of a very malignant nature in the bodies of people

people confined to those places, where the constitutional tendency to putrescency is very great previous to the infection; but if the same effluvia be mixed with a large quantity of fresh pure air, and then seize a person of a debilitated nervous habit, whose juices had no unnatural tendency to putrescency, a continued nervous fever will be the consequence. The symptoms of both fevers are the same, and differ in their degrees of vehemence. The remote causes of each are evidently sedative in their effects on the human body. They begin with languor, lassitude, chilliness, a weaker and more frequent pulse than natural, which symptoms are followed by cutaneous spasms and an obstruction of perspiration. The re-action of the internal viscera is soon after produced. If the patient be of a pretty strong and irritable habit, the re-action will probably be strong, denoted by a full quick pulse and a great increase of heat. In this case the disorder proves a synochus, beginning with an inflammatory, but ending in a nervous fever. If the patient be of a weak, delicate constitution, the re-action is less considerable, the contractions of the heart frequent and feeble, the heat moderate, and the fever properly denominated a nervous one. These, however, are dangerous distempers, and sometimes as fatal as the plague: for in moist and warm countries, the contagion becomes in a short time highly septic, and acting as an assimilating ferment, produces a very great degree of putrefaction in the animal fluids.

Again, infectious diseases do not indiscriminately affect all that come within their reach; individuals escape at times a very active contagion, though greatly exposed to it, while the same person at another time will catch the taint, when it is of a much milder nature. Of those who

are obliged to attend at the Old-Bailey, some escape without the fever by a looseness coming on, others catch the fever, while others escape entirely free. And the same person, at different times, and in different habits of body, is more or less, or not at all liable to the infection. In general, people that are much relaxed, low-spirited, much oppressed with grief, or exhausted with watching or fatigue, are most liable to infection; which evidently shews that fevers do not so much receive their diversity from the specific nature and quality of the infection, as from the habit of body previous to it. Therefore every medicine that invigorates the constitution, strengthens the stomach and internal viscera, comforts and corroborates the whole nervous system, supports the animal powers, and enables them to perform the different secretions and excretions, must be a powerful preservative against infection and bad air, every where, and at all times and seasons of the year when the weather is unhealthy; but I am well satisfied no medicine yet publicly known will answer those intentions so well as the Tonic tincture: but as it is improper in some states of a fever without a previous preparation, I shall now more minutely consider the nature and treatment of them.

The causes of fevers are external and internal. The external causes are the different states and conditions of the air. The internal causes are a plethora, relaxation, obstructions, or an overheated blood. Air is the mechanical agent and principle of life and animation, has absolute dominion over the animal and vegetable world, and sustains all nature. It is the cement that unites and keeps together the parts of all bodies, is the cause of the circulation of the blood, regulates and sustains all the animal functions. By the ministry of fire and air, as I
already

already mentioned, a perpetual circulating motion is kept up, and by the equilibrium between the fire and air nature is supported. The expanding or dividing power of the fire is counteracted by the compression of the air. The solidity and fluidity of matter arises from the different degrees of compression of the air. As the action of the air is diminished, so the expansive force of the fire is proportionably increased. The greater the heat of any body is, the more it tends to putrefaction or dissolution; therefore the more you heat the animal body, the greater tendency it acquires to putrefaction. The consistency, tension and firmness of a human fibre, arise from the compactness of its parts by the compression of the air, diminish the action of the air, which of consequence increases the heat, and the fibres become weaker and more relaxed from the particles of which they are composed being forced too far out of their sphere of contact: therefore all unnatural heat, from whatever cause, weakens and relaxes the solids; tho' a certain degree of heat is absolutely necessary. The digestion and concoction of the food, and circulation of the blood, are performed by the action and expansion of the fire contained in them, which gives them a tendency to division, separation and putrescency.

All things in nature have a tendency to dissolution, imposed upon them by the Author of nature. All animal and vegetable substances pursue a regular course towards putrefaction; that course is accelerated or retarded by various means: we have therefore more reason to wonder that they do not always run into a putrid state, than that they should sometimes do so. The human species possesses a degree of heat and moisture, interwoven with the constitution, highly favourable to putrefaction; but by the

wise order and direction of the Almighty Providence in the construction and disposal of the animal œconomy, these two powerful causes and natural tendency to putrefaction are perpetually regulated and restrained from advancing too far, to destroy the animal œconomy, or to produce any evil in their natural way.

We have already proved, that the progressive tendency of our food, from the time it is received into the stomach, to putrefaction, is one great cause of its being converted into blood, and of the circulation of that blood for the nutrition and support of the animal œconomy; and Providence has so ordered the mechanism of our bodies, that as soon as our food becomes so far putrid as to be unfit for animation, it is by the laws of the animal œconomy expelled the body. Such is the state and condition of every living animal, as to be threatened with corruption and putrefaction from the mechanism of its own frame, and the necessary laws of circulation by which it subsists. Hence the necessity of throwing out of the body, by different outlets, those acrimonious and putrescent juices, rendered thus unfit for the animal uses and functions; and a daily supply of food or fresh nourishment is required to recruit this constant waste both of the solids and fluids. Thus the bodies of all animals are in a constant state of change and renovation, by which they are preserved from death and putrefaction. These excrementitious humours naturally destined for this evacuation, when retained long in the body, are capable of acquiring the most poisonous and noxious qualities, and become highly putrescent, corrosive and acrid, and in that state give rise to various diseases, according to the habit and constitution of the person, the state of the solids at that time, and the influence and determination of other causes.

causes. One person may be attacked with a dysentery or cholera, another with a putrid remittent or intermittent fever, and a third may be seized with a malignant fever from the infection or putrid effluvia arising from the excrement and perspiration of the other two: for one principal cause of the putrid, malignant hospital and jail fever, as we shall afterwards more fully explain, is a number of persons being crowded together in foul confined places, especially in hot weather; it arises when dysenteries, mortifications, and other putrid diseases, prevail; and any person taken ill of a putrid disorder, such as the small-pox, dysentery, &c. if confined in a small and close apartment, will naturally fall into this fever. Preceding distempers, salivation, or any other relaxing cause, dispose to it. It is infectious chiefly to those who are constantly in the bad air, such as the sick in hospitals and their nurses, and prisoners in jail; all others escape it, or the symptoms come on so slowly as to leave time for prevention. This still farther proves that fevers receive their variations from the constitution, and the greater and lesser number of causes that unite to form the disorder. When the hospitals are filled with dysenteries, some of the nurses are infected with the flux only, and others with a malignant fever. The cholera, bilious fever, and dysentery, appear in the same season with the malignant fever; the last particularly seems to be a constant attendant on it. The bilious remittents and intermittents of low and wet countries, when at the worst, have all the symptoms of a malignant or pestilential fever, with all the virulence of the symptoms, and is literally a putrid fever. Putrid fevers rage most in flat marshy countries, where the water in common use is corrupted. The remitting or bilious fever, by foul, confined rooms, or
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where the alimentary canal was not thoroughly cleared, and the excretions, particularly by stool, not duly attended to, or entirely neglected, degenerate into, or rather soon discover the putrid symptoms of a malignant fever.

Not only due and constant evacuations of what is rendered useless, and likewise extremely poisonous to the body, are requisite towards the health and life of the animal, but a fresh and daily supply of soft and mild liquor, such as the chyle formed from the food in the stomach, is farther necessary to correct and prevent the constant and natural putrescent tendency of the humours arising from the necessary action of animation. People that die by hunger, do not perish from inanition, but from putrescency, because the putrescent tendency of the fluids does not receive a check from the addition of fresh supplies of food. To preserve the body in health then, there must be a constant accession of fresh chyle to supply the place of what is discharged by perspiration, &c. and this chyle must preserve an unwearied motion, till it arrive at the same outlets which discharged the preceding portion. Therefore by motion our bodies are nourished, life sustained, and putrefaction prevented. Motion then is the most powerful antiseptic to the human body. A living body can only become putrid by a defect or excess of the vital motions, and whatever causes this defect or excess will bring on a putrid state of the humours, which will spontaneously run into that state whenever the causes that perpetually hinder this disposition are taken away or suspended. And if we examine the other parts of the creation, we shall find motion equally powerful through all the works of nature. Every thing, animate and inanimate, is in perpetual motion. In the bowels, and
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upon the surface of the earth, there is a perpetual motion. The sea has its perpetual fluxes and refluxes. The rivers are continually running towards the sea, and are kept fresh by that motion. The planetary bodies move in the heavens. The air is in perpetual motion; and those putrid particles, which are constantly floating in it, and would, if it was in a state of rest, accumulate, and form a very poisonous atmosphere, are dispersed, and prevented from doing injury to the human body by the motion of the air; and as it has more or less of that motion, it is found to be more or less healthy. All vegetable matters, while they are alive, have motion; by it their juices circulate, their vegetative life is preserved, and their bulk enlarged. The motion of animals we have already taken notice of. Motion is an universal and invariable law of nature, by which the whole material world is preserved and kept alive.

Neither the whole, nor any part of a living animal, ever becomes constitutionally putrid, while a regular motion is preserved, unless previously disposed thereto by the existence of some cause. A dead animal again runs spontaneously into putrefaction, unless prevented by some evident cause. But living and dead animals are exactly of the same materials and construction. That a living animal does not putrify as readily as a dead one, must therefore be owing to something which it enjoys while alive, and is deprived of when dead. Let us therefore see wherein this difference consists. The first and most obvious difference is motion. Now as motion, proportioned to the laws of the animal œconomy, is unfavourable to putrefaction, a state of relative rest is in the same proportion favourable to it; therefore the motion of a living animal prevents it from falling into corruption, and the want of

motion

motion in a dead animal induces that state upon it. If the circulation is by any means prevented in any part of the body, if a ligature is tied round a leg or arm of a living body, or if the influent blood is denied admission, from obstruction, into any part of the body, the limb or part being deprived of motion, and the fluids forbid a free communication with the rest of the blood, follow their own nature, become putrid, and the limb or part mortifies. Just so it is in the vegetable system. Therefore we see that motion is absolutely necessary to preserve life, and that the continual approximation of new and fresh parts to the body, in consequence of the use of it, must be a powerful preservative against putrefaction, by hindering the fermentative motion from completing its progress before it arrives at those outlets which nature has prepared for its expulsion: for as long as the fluids are supported in their fermentative motion by fresh supplies a tergo, they continue their regular progressive course, till they are carried out of the body. When that impelling force is removed, they must remain longer in the body than by the laws of nature they ought, stagnate, and following their own nature, become highly putrid. And it has been found, that people who have died of famine have been in a highly putrid state before their death. Water will keep a person some time longer from starving, not by communicating any nourishment, but by keeping the fluids in some degree of motion, and by impeding their rapid progress to putrefaction.

Though motion, rightly regulated, and agreeable to the laws of the animal œconomy, preserves life and health, yet when it runs to either extreme, it acts in a contrary manner: if it be too slow, it suffers the fermentation to complete its course too soon, and
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brings on putrefaction ; if it be too rapid, it produces the same effect by destroying the texture of the fluids, lets loose the inclosed fire, and suddenly deprives them of their cohesive principle or bond of union, by which they were preserved in a sound state, and by the loss of which they run into a morbid one. We accordingly find a rapid febrile motion changes the humours into a putrescent state in a few days. Van Swieten says, *Nimia agitatio longe adhuc celerius putridinem inducit. Acutissima febris in viginti quatuor horas sic potest corrumpere omnia, ut urina foetida, fœces alvinæ cadaverosæ penitus, halitus oris putridissimus, interna omnia jam corrupta testentur.* The pulse informs us whether the circulation be accelerated or retarded beyond the standard of health, The pulse, in a healthy person, is commonly slow and equal, and the more it varies from that state, the more it marks the diseased state of the body. In health the pulse is generally under 70 in a minute. When the pulse is feeble, it shews that the powers of circulation are weakened, or that the body is exhausted, or that the blood is so accumulated in the obstructed vessels, as not to leave of that which is circulated freely a sufficient quantity to dilate the arteries. Van Swieten says, the concoction of the feverish matter, and the expulsion of it from the body by critical evacuations, or a deposit upon some particular part, require strength of circulation, it follows, that a weak pulse must always be a bad one, as, on the contrary, a strong pulse must be a good one, and happily this last may at all times be reduced by blood-letting and other remedies, to a moderate state, if it should become too strong ; whereas the difficulty of restoring the vital powers, when exhausted in diseases, is exceedingly great. In persons dying the pulse is always weak and very quick,

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almost past reckoning, and at times very unequal in its beat, predicting but too clearly the approaching event.

As our meat is dissolved in the stomach, and the body is nourished by heat, a certain degree of it is therefore necessary for the solution of bodies, yet heat is one cause of putrefaction. All substances, whether animal or vegetable, remain fresh while they continue in a frozen state; and there are degrees of heat, which, in direct opposition to this method, preserve the same substances, by exhaling their radical moisture so fast, that they have not time to run into putrefaction. The degree of heat necessary to produce putrefaction depends upon the thickness and quantity of moisture of the putrefying body; for moisture is a great forwarder of putrefaction, though it does not seem to be much more so from being putrid and stagnant. Some affirm that putrid, stagnant water, does not produce putrefaction in other bodies so quickly as fresh water. Heat is therefore a powerful sceptic and stimulant; without it there can be no life; and when applied to excess, it is highly destructive of health: it exhausts the nervous energy, and renders it insufficient to support in the constitution the necessary functions of life; hence arise the symptoms denoting debility; the tone of the stomach and intestines is greatly impaired; appetite, digestion, and nutrition, become defective; the circulation is but imperfectly performed, and the secretions and excretions are variously disturbed; some are lessened, while others are morbidly increased; the body becomes weak, irritable, and highly obnoxious to the action of cold, and the blood is rarified and hurried on to putrescency. If then the heat from any cause is unnaturally increased, the fluids of our bodies are put into unnatural tumult and hurry by the friction of the particles of matter against each other; the
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fire is let loose, which tears and destroys the tender vessels, increases the circulation, irritates the nerves, and thereby increases their sensibility. Nature runs to some of her outlets to relieve herself; and if she is unable to throw off the putrid matter by perspiration, urine, or stool, the body becomes putrid in proportion to the heat. Every one has heard of the difference between hot and cold climates, of the unwholesomeness of some of the East and West-India settlements, and how much the same substances tend to a more or less putrid state, according to the nature of the climate or season of the year. The southern winds blowing over the burning sands of Africa, occasioned the plague at Tunis, which obliged those that could afford it to fly to Old Carthage for safety. In hot climates the meat must be eaten as soon as it is killed; in colder climates it will keep several weeks or months. In our own climate, the winter and summer shew us the effects of heat and cold. In a hot day we feel a great laxity, debility, and faintness; and if the perspiration, which is great in summer, be suddenly checked, we become sick and feverish, or are seized with a diarrhœa. A temporary heat, of short duration, proceeding from violent exercise, heat of the sun, hot room, &c. that hurries the blood too fast through the vessels, when there is no offending matter received into the blood, produces only a slight temporary fever, which goes off after rest.

Moisture is the parent of corruption or putrefaction in nature, and when joined with heat, begets the most putrid diseases, even the plague itself; but moisture, combined with other particular circumstances, as gross diet, nastiness, &c. disposes in a particular manner to putrefaction. The cold, humid state of the air, is not so favourable to putrefaction as the

the hot and moist ; but as living animals have an innate principle of heat in them, which is almost always sufficient for this purpose, and which seems to suffer little or no alteration from the heat of the surrounding medium, living bodies are therefore in a state fit to become putrid, independent of any auxiliary heat. A hot, moist air, Dr. Lind says, is most favourable to the rise and progress of acute putrid diseases, as pestilential and malignant fevers of all sorts ; and a cold, moist air, most favourable to slow chronic ones, as the scurvy. A continuance of heat and moisture in the atmosphere are highly favourable to putrid fevers, by pre-disposing the body for the reception of putrid infection, which, when applied, will produce a putrid disease in such a state of the air. It has been always observed, that a warm humid atmosphere has been followed by putrid epidemics, as plagues, so called in the southern countries ; and malignant fevers, intermittents and dysenteries, in the north. Malignant fevers and fluxes are incident to all marshy countries after hot seasons, and are generally endemic. It is observable, that betwixt the tropics the rainy seasons prove the most unhealthy and dangerous, not only at land, but in ships, and give rise to infectious fevers, scurvies, &c. The same infection which would produce an epidemic or endemic in a moist hot air, would not perhaps been able, in a dry warm, or in a dry cold state of it, to have produced any morbid affection at all ; and this opinion seems confirmed by the history of the plagues, which in all countries have generally been observed to abate something of their severity in warm and dry weather, and very often to cease entirely in cold, dry, and frosty weather.

As heat expands within, and acts through the whole body outwards, so the air compresses from without, and counteracts

counteracts the force of the internal fire. Therefore cold air braces the fibres, and gives that vigour, strength and activity, which people feel in clear frosty weather. In marshy overflowed grounds, putrid fevers make most rapid strides. Marshy places, and those adjacent to them, suffer most and soonest from putrid epidemic fevers; yet the high grounds, though longer protected, do not claim an entire exemption from their fury, when the infectious matter is very active.

A moist, foggy, and hot atmosphere, is productive of putrid diseases. First, by diminishing and shutting up the perspiration, by which a superfluous load of noxious humours being confined in the body, it will be more liable to fall into a spontaneous disease, or to receive the infection of a putrid one. 2dly, By weakening and relaxing the spring of the animal system, and thereby diminishing its power of resisting any morbid contagion that may be applied to it. And, 3dly, By introducing into the system a superfluous quantity of aqueous moisture, which accelerates the putrefaction of animal substances, by impeding the free circulation of the blood, and by dissolving the humours beyond what a healthy state admits.

The season of the year not only affects the nature and quality of the humours, but influences and directs their course, and is one great pre-disposing cause of fevers. In spring nature unfolds her powers by the genial heat of the atmosphere, and winter's torpid juices begin to circulate freely; but as the winds are often very cold, we find the spring gives birth to inflammatory fevers from fizy blood. In summer the heat gives the humours a direction to the outward parts, abates the inflammatory symptoms, occasioned by the compactness and elasticity

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of the vessels, dissolves the blood, and in proportion to its heat, produces more or fewer putrid fevers. But Providence has made large provision against the hurtful effects of this season by the large quantity of fruit which the summer produces. Fruit is the medicine our Almighty Physician prescribes, the earth produces, and man ought to be liberal in the use of it. In autumn the humours are more compressed and restrained, and their course has more an internal direction. The autumn is justly considered as the most sickly time in this country. The moisture, with heat, and sudden changes from hot to cold, the air being at the same time loaded by the heat of the summer raising much putrid vapour from animal and vegetable matters, affects the elasticity of the fibres, stops the free circulation of the blood, obstructs the regular perspiration, which occasions a greater quantity of putrid matter to be retained in the body, and the fluids become much dissolved. The winter finding the blood in a putrid state, condenses our bodies, and at the same time that it makes them elastic and active, subjects them to many diseases. The cold impedes the action of the external organs, a smaller quantity of matter is thrown off by perspiration, the nîsus of the humours are changed from the circumference to the centre, the internal viscera are loaded with a redundancy of matter, and labour to disengage themselves, and throw the superfluity upon the cellular membrane and extreme parts; for the exhaling vessels being shrivelled up, increase the plethora, and nature finds no relief by perspiration. This redundance occasions heaviness and inactivity, a sense of fullness, great languor and horrid dejection of spirits, weakness and great lassitude, sickness and reaching; and if nature does not relieve herself that way, or by urine or stool,

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the plethora falls upon the lungs, joints, or some of the internal viscera, and produces coughs, gout, rheumatism, atrabilious complaints, &c.

The circulation of the blood through the liver, in a healthy state of the body, is very languid, and the blood much animalized or putrescent. When nature is debilitated, a plethora is produced, the blood is obstructed in its passage thro' the liver, and being, in its natural state, much animalized, becomes highly putrescent by stagnation, and in that condition mixing with the rest of the fluids, greatly forwards the putrescent tendency of the whole mass. The bile itself becomes sooner putrid, either from heat or agitation, than any of the other fluids of the body. The slow motion of the blood in the vena portarum through the liver, promotes a large secretion of bile, and the slower motion of the blood through all the viscera which communicate with the vena portarum, is no doubt the reason why these viscera are more liable to obstructions, infractions and inflammations, and of course become the seat of chronical and grievous diseases. In this situation, which may be induced upon the body, not only by the winter cold, but by every cause (some of which have been already mentioned) that debilitates the body, and introduces a morbid tendency in the blood; the oppressive load or weight of redundant matter, and its acrimonious and putrescent quality, being greatly increased by the accumulation and influx of ill-conditioned bile, puts the whole animal œconomy into an unnatural tumult and hurry; relaxes the nerves and fibres; accelerates the circulation; irritates the nerves, and thereby increases their sensibility, and brings on spasms and an irregular diffusion of the action and influence of the animal spirits. No sooner is the spasm brought on the biliary duct, than

the bile rushes into the stomach, and mixes with the blood. The cystic gall, being thickened by the heat and fermentation of the blood, and not being able to pass through the common duct, produces the same effect as gall stones, and the parts become enflamed; then the skin itches, the heat of the body and the putrescency or rarefaction of the humours increase, the spirits are oppressed and impeded in their action, sleepiness comes on, the stools become whitish, the stomach fills with bile, which is often evacuated upwards in large quantities, the complexion changes into a languid fallow or yellow colour, the liver is distended, irritated and heated, and the fever advances fast. At first it puts on an inflammatory appearance, but the constitution soon determines the nature of it. If the constitution before the attack was strong and vigorous, and the body full of blood, the fever will be of the inflammatory kind, and its severity or height will be in proportion to the strength and fulness of the habit, and the degree of infection. If the patient be of a bilious habit, and the solids more relaxed, the same cause will produce a bilious fever more or less inclining to putridity, according to the degree of relaxation and putrid tendency of the offending matter. In a weak and relaxed habit, where the fluids are much inclined to putridity, the same infection will bring on a putrid fever, which is more or less severe according to the virulence of the infection, and the number of causes which unite to produce it. Thus putrid fevers advance from the lowest, through the intermediate degrees, to the highest, which is the plague. It also has its degrees of severity, and those that are strong and healthy oftenest escape, for the vigour of the constitution expels the poison. But if the constitution be weakly, the spirits languid, and the habit full of putrid
juices,

juices, that person has no chance either to escape or survive the infection.

As the pre-disposing cause inherent in the constitution makes the principal distinctions which we observe in the nature and symptoms of fevers, there is no occasion for those divisions and subdivisions which physicians make in treating of them. When the infectious matter is so putrid and virulent as to invade a whole country, or one particular place, as a county, town, or jail, then no constitution can determine the fever to any other than a putrid one, commonly called an epidemical, endemical, or jail fever. If a fever affects one part of the body in particular, it receives its name from the part affected. Thus, if an inflammation affected the brain, it is called Phrenitis, or frenzy; if it be confined to the pleura and intercostal muscles, a pleurisy; when the lungs are affected, a peripneumony; if the fever lodges mostly upon the eyes, an ophthalmia; when the throat is the seat of the complaint, it is called a quinsy; if the offending matter is of a putrid kind, the complaint is called Angina maligna, an ulcerated sore throat.

Fevers are more or less dangerous according to the quantity and quality of the offending matter, and the degree of heat which attends them. The height and severity of a fever are known from the cold and hot fit, when the patient is first seized, and from the pulse; for fevers are generally ushered in by a sense of cold down the back, and in the extremities, which is more or less severe, and continues for a longer or shorter space of time, in proportion to the severity and duration of the ensuing distemper; the pulse ascertains the exact condition of the heart, the disposition, quantity, and motion of the blood and fluids, and the force and power of the solids.

Putrid fevers arise from a concurrence of causes; and when few causes unite in forming them, they are, in their common course, slow and catching to those chiefly who are constantly confined to a bad air. The person, perhaps, perceives no symptoms of contagion for several days after catching it, 'till an exposure to wet, cold, damp, or some act of intemperance and irregularity, bring it forth into action, which, without these superadded causes, would have lain dormant, and never exerted its influence upon the body; and people are often led into a mistake, and suppose the fever to be brought on by wet, cold, damp, &c. which are only secondary causes. In sickly times, when infectious diseases are prevalent, people cannot be too careful not to expose themselves to those causes which naturally rouse into action the latent seeds of contagion, which may be lurking in the cloaths or body, waiting only for such a reinforcement to enable them to exert their baneful influence upon the constitution. When the effect of contagion is sudden and sensible, and attacks the whole system, many causes unite to make its source very active and virulent; it is then one of the greatest calamities that can happen to any people or person.

By the order of Providence, as I have before observed, our food, from the time it is received into the stomach, advances, by a regular progressive process, towards putrefaction, 'till it becomes so putrid as to be unfit for nutrition; then it is discharged out of the body by perspiration, &c. The effluvia or perspiration of living bodies has therefore a strong sceptic power; and if the perspiration of one healthy body promotes putrefaction in another, then that of a person in any illness must be a greater sceptic in proportion to the degree and nature of the

the disease. What have we not to fear from the effluvia of such as are afflicted with putrid diseases, where the whole air of the room and the atmosphere for a considerable distance are loaded with contagious putrid matter, continually flying off from the body, which being infectious, have a power of producing malignant fevers in the bodies of those that receive them? These infectious particles are continually emitted in very large quantities from bodies sick of putrid and malignant fevers, with their breath, insensible perspiration, &c. also from tumours, ulcers and sores: they are highly subtilized and virulent before they are fit to float in the air; but that the air is full of such particles in all infectious places, is evident from the effect they have upon our smell. No animal can live long in the same air, for the breath and perspiration quickly spoil it. The air of prisons, for this reason, produces dangerous putrid fevers. But when infectious matter is diluted, divided, and dispersed by the air, it loses greatly its infectious quality, so that the danger of being infected depends upon the quantity of infecting matter emitted into the air, and the nearness of persons to receive it, before it is so much diluted with the air as to have lost its power of producing the distemper. The odoriferous vapours from the spice islands are perceived by mariners at sea afar off; and sweet scents, from abundance of fragrant flowers on the shore, will be waisted by fresh gales to a great distance. It is no wonder then, that pestilential steams or effluvia should be borne in the air from person to person, city to city, and kingdom to kingdom, and attack all without distinction of persons, age or sex. Historians tell us that the famous plague at Athens, which made such terrible havock and devastation, was brought from Egypt by the winds.

The effluvia arising from privies has also a putrid infectious quality, especially if they are used by people labouring under putrid diseases, when the excrement is very foetid; otherwise they are full of volatile salts, which disperse the putrid particles, and prevent their hanging so much in clusters in the air, and having proportionably less moisture than the other excrementitious parts of the body, are either soon dispersed entirely by the winds, or meeting with no fumes to cherish it, will become gradually weaker and weaker, 'till they lose all their power of doing harm. The venom of infection is sometimes not to be destroyed by the admission of the purest air, nor can the severest frosts mitigate its force.

If the infection be chiefly confined to the alimentary canal, the stools will be most communicative of the taint. If the lungs are chiefly affected, the breath will most readily convey the disorder. In short, wherever the infection is most concentrated, the excretion from thence will be most infectious. When the whole mass of blood is equally affected, each pore emits an equally active poison; though in general more infection is received by inspiration and communicated by expiration than in any other way.

Infection, from whatever fountain it is derived, does at first affect the stomach and intestines. The first impression is for the most part an earthy disagreeable scent, or cadaverous stench received into the stomach, occasioning a shivering and sickness; being swallowed with the saliva, it there fixes its malignity, as appears from the nausea and vomiting. It is uncommon to find a case of this sort, which does not begin its first attacks with these symptoms; the irregularly returning shiverings or agueish state will continue with some longer, and with others shorter:

shorter: the patient is some days before he feels himself very ill; then a pain is felt to dart with violence into some part of the body, and a sudden and remarkable prostration of strength seizes the whole frame. These symptoms are observed constantly to attend all putrid diseases.

The putrid effluvia of unhealthy or diseased bodies is certainly a great sceptic, yet it has many auxiliaries which help to facilitate its operation. Moisture, as I already observed, is an absolutely necessary agent in the progress of putrefaction. Nastiness is the baneful source of much sickness, and at last produces a most active contagion. It is a great promoter of infection, and cleanliness is a great preservative against it. It is observable that pestilential fevers and dysenteries have abated in Europe since our improvement in cleanliness, and the more general use of antiseptics in diet. The strictest and most unwearied regard therefore is to be had to cleanliness, particularly in places most liable to infection, as it is so highly conducive to health; and also to eat a sufficient quantity of vegetables with our food. But as I have already fully explained the bad effects of intemperance in eating and drinking, and living mostly upon animal food, it becomes unnecessary here to explain how much it will co-operate with the causes already mentioned, and greatly exaggerate every symptom.

The offensive and polluted air in unhealthy marshy places, and where the timber is not cut down to give a free circulation of air; also the noxious vapours exhaling from the earth, and circulating in the air at unhealthy seasons of the year, produce agues, fluxes or fevers, for the most part of a low and malignant kind. In many unhealthy climates, strangers in general are sure, upon
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their first arrival, to be attacked with distempers often fatal to them. At first coming, they lose their colour and appetite, become yellow and troubled with sickness and indigestion, which is another proof that infection first attacks the alimentary canal. Against the danger people are exposed to, that live in hot and unhealthy climates, and particularly upon their first arrival, the Tonic tincture, having first cleared the *primæ viæ*, is a most excellent medicine, capable of securing the safety and very considerably prolonging the lives of the inhabitants of hot and unhealthy climates.

If the air be filled with the putrid effluvia of dead bodies, it occasions pestilential fevers. What occasions contagious diseases to be more frequent in hot countries, is not from the degree of heat only, but from the effluvia of an infinite number of reptiles and insects that are produced by the heat, and lie dead and putrid upon the ground. When the effluvia hangs long in a moist atmosphere, the heat of the sun exalts it into a degree of virulence sufficient to contaminate every object as far as it reaches, till fresh air ventilates, mixes with and disperses it, and thereby weakens its power. After the ebbing of the Nile, infectious diseases are very prevalent in the neighbourhood. When that river ebbs, it leaves mud, rotten reeds, flags, and a number of living creatures, which soon die, by the heat of the sun become putrid, and detach a number of corrupted particles which pollute the air and make it pestilential. The effluvia of rotten vegetable matters have little effect in contaminating the air; from some experiments it appears that they possess rather an antiseptic virtue. But putrid animals moisture and heat are very sufficient to render the air unwholesome. All putrid diseases are most common,
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and rage most furiously in summer; but the frosts and cold of winter check or put an entire stop to their progress, by compressing and counteracting the expanding or dividing power of the fire or heat. Fire indeed is useful at all seasons of the year when the air is moist, and is particularly good to dissipate raw damps and moist exhalations that arise from fenny or watery lands, which are hurtful, by weakening and relaxing the body, and checking a regular and free perspiration.

One great preservative then in time of danger from infectious air, is to keep the body cool and temperate, that it may be as little as possible disposed to receive the infection; for when the body is heated, and from any of the causes already mentioned, much disposed to putrefescency, the infection acts like sparks of fire falling upon tinder. Any depression of spirits, grief, anger, vexation, but particularly a pining wasting grief, uneasiness of mind or melancholy, very much expose the body to the danger of infection, give it great power when received, and render the body little able to support life under it; but a lively and chearful disposition of mind fortifies and invigorates the spirits, and enables the body to resist infection. All the passions of the mind affect the nervous system, and irritate and heat the blood; therefore the mind should be kept as undisturbed as possible in unhealthy seasons of the year, and most particularly after the infection has made its attack, when great care should be taken to keep up the patient's spirits by flattering hopes of recovery, and all noise, or whatever may hurry or alarm the spirits, should be as much as possible prevented. Terror of mind facilitates the attack of contagion upon the body. Accordingly we find that impressed men are most liable to catch infections and jail fevers. Whatever debilitates

debilitates the body renders it unable to resist a contagion, which formerly it would have easily conquered, when the constitution was more vigorous, and endowed with more force and activity to resist or throw off the infection. Therefore when the air is unhealthy, and infectious diseases are prevalent, people should take something to animate and invigorate nature, to sustain the assault, and to preserve the vitals from a mortal attack. Upon such occasions nothing can be better than the Tonic tincture, red wine and bark; and fasting, watching, great fatigue, and every thing that hurries the constitution and enflames the blood, should be avoided; the stomach should be supplied with good and wholesome food, which may convey healthy nourishment to the blood.

The specific nature and qualities of infection are no doubt various, and operate with different degrees of violence, according as it is more or less concentrated and assisted by more or fewer causes. Though infection is not propagated from animalcules, yet the specific nature of the infectious or generating atoms may for ever remain unknown to us; all that we with certainty know is, that such and such causes produce putrid fevers, the severity of which is owing to the degree of virulence in the infection. We know by experience, the best guide and surest test of medical truth, that malignant fevers and fluxes are incident to all marshy countries after hot seasons, to populous cities low and ill aired, unprovided with common sewers, where the streets are narrow and foul, houses dirty, fresh water scarce, where jails and hospitals are crowded, and not ventilated and kept clean, burials within the town, and bodies not deep laid, slaughter-houses within the walls, dead animals left to rot in the kennels; where there is any large body of stagnant
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corrupted water, when flesh-meat makes the greatest part of the diet without a proper mixture of bread and greens, when the grain is old and mouldy, when the food is tough, the body relaxed by immoderate venery, warm bathing, long illness, meats long salted, and kept till they become putrid.

As contagious matter is an active subtile substance, it is not difficult to conceive how it may be lodged and preserved in soft porous bodies. Every one knows how long perfumes preserve their scent, if wrapt up in proper coverings. The substances most apt to receive and communicate infection are furs, feathers, silk, hair, wool, cotton, flax, linen, skins, paper, &c. Infection may be conveyed to very distant countries in goods, by the air, and by infectious matter hanging upon the garments of those that come from infected places; therefore the government, in all states and kingdoms bordering upon any infected country, use every known precaution to prevent any persons or merchandizes from being imported from places visited with this heavy calamity. This is all that the magistrate can do to prevent the importation of the plague, or any infectious disease, from foreign parts, besides obliging all that come from suspected places, as well as where the pestilence is known to rage, to perform quarantine for forty days, as it is supposed that the contagious matter that hangs to the ship, cloaths, or merchandize, will be dispersed, ventilated, corrected and destroyed, in that time; however, that is very uncertain, if nothing else be done than what is performed by the air. For we find that in jails, and other infected places, the seeds of infection adhere strongly, not only to the cloaths, but to the floors, walls, beams of the house, bedsteads, and other furniture, for a very long time; and being
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much concentrated, are more ready to impress the infection from thence, than the newly emitted effluvia or excretions from the sick.

It would contribute greatly to the healthiness of a town, if all beggars and idle dirty vagrants were prevented from wandering in the streets. They carry their dirt and putrid nastiness from place to place, and in hot weather add very considerably to the unhealthiness of the air.

No creature should be fed for slaughter or killed in any city: the slaughter-houses should be at some convenient distance from town, that the butchers may bring their meat to market in the night, or early in the morning. Another extremely improper thing is the burying people in churches and church-yards in town. Though infection, as I have already observed, arises from the dissolution and putrefaction of animal bodies, yet we bury our dead in places that they may rot and stink under our noses. It would therefore be very proper and conducive to health, to have the burying-ground without the walls of the city. The common prostitutes are far from adding to the healthiness of a large city; they should be confined to one street or part of the town, that the air may not be contaminated by the putrid effluvia of their filthiness, and that modest women may walk the streets without being exposed to the rudeness of every impertinent puppy.

Contagion is propagated from one body or person to another by contact, breath, perspiration, &c. When the air is full of putrid and infectious particles, they enter the human body either through the nostrils into the lungs, along with the air drawn in by inspiration, or through the mouth, where they mix with the saliva,
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and pass with it into the stomach, when it is swallowed, or else through the pores of the skin by means of the inhaling vessels; but as a small part of the skin is exposed, the principal inlets of contagion are the nose and mouth. Accordingly we see that a person, as soon as he has caught the infection, smells or tastes something bad, his breath is affected, or he becomes sick. Therefore any medicated air that will prevent the putrid effluvia from entering the body by these inlets, will prove of infinite service in preventing infection from injuring the body. All attempts to purify the open unconfined air, which is constantly flowing one way or other, and of an immense bulk, would prove as fruitless as to endeavour to free the sea of its saltness; yet though we cannot make the sea fresh water, we can purify a certain given quantity of it. In like manner, though we cannot purify the whole atmosphere, yet we may be able to alter the state of the air within a given circumference, and various qualities may be introduced into the air in a given space. When the air of a room has any quality prejudicial to health, that quality may be altered. If the air is too moist, there are proper means to make it drier; if too hot, it may be made cooler; if too cool, it may be made warmer; and if any infectious matter is in it, the body may be rendered not so susceptible of the infection, and an artificial atmosphere may be made to repel the putrid matter; and as long as the cause remains, by renewing the same means, the effect must still continue to be the same. The tincture which I have so often mentioned in this book, gives an agreeable aromatic smell to the room, destroys the infectious taint, purifies the air, prevents and repels bad smells in a certain given space, and taken internally, strengthens and fortifies the stomach and internal

ternal viscera, comforts and enlivens the spirits, and enables the body to resist the contagion for a certain time, till it has lost its virtue, and must then be renewed. Certainly a medicine which promises so flattering hopes of safety from so dreadful a calamity as infection is, deserves particular attention.

Upon the first attack, the coldness felt over the body, the shivering and slight sickness at the stomach, evidently prove a constriction upon the surface, and that the infection has been plentifully received into the stomach. The delay of a few hours is dangerous; a vomit should be immediately exhibited before the fever be formed. In all cases of infection, the most quick and vigorous means should be pursued, and less must be trusted to nature than in any other complaint: for as soon as the putrid myasmata are swallowed with the saliva, they act as a ferment upon the contents of the stomach, and being received into it, and mixed with its contents, when they are in a fermenting state, the infection changes the product of that ferment from a mild nutritive liquor to an acrid and putrid one, which running rapidly into putrefaction, circulates with great velocity, becomes highly animalized, and acting as a sceptic upon the whole mass of blood, soon assimilates it into the same putrid nature; then a putrid fever comes on from too great a solution of the fluids. In this state, if nature be tolerably strong, and the extremities of the excretory vessels at the same time shut up, she endeavours to propel those putrid particles towards the surface, where meeting with an obstinate resistance, they can proceed no farther, and thus being lodged between the cutis and cuticula, form what are called petechiæ, livid spots, &c. But the malignity in no fever can be characterized by spots only, unless the pulse be
low

low and sunk, the patient comatose, delirious, or both, and the countenance bloated, or flushed with a pale red. Whatever the degree of infection may be, the matter of these petechiæ being thus extravasated, generally becomes more and more putrid, as they are fomented with heat and left in a state of rest: when nature finds that in that state they would produce further mischief, by contaminating the parts around them, she makes another effort to get clear of them, which is done by again absorbing them into the system, with a view to throw them out some other way; in which if she succeeds, the patient recovers; if not, death puts an end to the conflict.

As the skin is full of inhaling vessels, as soon as the contagious myasma is imbibed by these vessels, the fluids are at the same time spoiled by an assimilating ferment in that way; the mouths of the cutaneous vessels being compressed, and their diameters diminished by a spasmodic constriction, a proper quantity of perspirable matter is thereby prevented from being discharged, and too great a quantity of this highly volatilized and putrid matter being retained in the body, not only occasions a plethora of the most infectious kind, but hinders the progressive motion of all the fluids, even to the circulation of the chyle from the stomach.

Infection may be communicated in our meat or drink, which, after it is received into the stomach, infects the whole mass of fluids.

The murrain amongst cattle is as contagious and destructive to them as the plague is to the human species. It is produced by unwholesome herbs, bad water, malarious air, &c.

In putrid fevers there is not such a corruption of humours as happens in dead bodies, but only a remarkable

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degeneracy

degeneracy in them from their natural state. We know that even sound juices, either left in quiet or in a certain degree of heat, or when very much stirred, acquire a great forwardness to putrefaction, and that their natural propensity to that state increases in proportion to their motion and heat, though they do not arrive at the strongest degree of it: for their acrimony goes on to affect the brain and cerebellum in such a degree, as to destroy before the juices become quite putrid. But the progress towards a putrid state is in proportion to that tendency; therefore a fever is called putrid, which is owing to more active causes than inflammation, viz. to obstructions of the viscera, of the skin, of the capillary vessels, and by consequence to the peculiar and active acrimony: for violent exercise, checked perspiration or crapula, when there is nothing more material, produces an ephemera or fever of twenty-four hours, cured by losing a little blood, sweating or dilution. When the disposition or healthy texture and consistence of the blood remains unaffected, and the offending matter is only sufficient to quicken the circulation, the constitution soon expels the offending matter without any great or grievous symptoms; but when the humours are degenerated from their natural state, they increase in malignity according to their degree of degeneracy, and the fever becomes putrid. Though the juices are stopped in any particular part, as in the pleurisy or phrenzy, the blood yet circulates freely elsewhere; therefore the fever cannot be called putrid, as the humours are not degenerated materially; but when the blood has acquired a state that does not admit of its ready circulation, and begins to stop in the intricate parts of the viscera, then all the capillary vessels become obstructed, or at least admit the juices with difficulty, and
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of course produce friction and great heat, two causes which account for many of the worst appearances of fevers as mortal stasis in vital parts, and other symptoms of the most fatal tendency. When the constitution, climate, season, diet, and other pre-disposing causes, have prepared the body for a bilious fever, a little more derangement is all that is wanting to excite it. For instance, thinner cloaths, sitting up a whole night, even in a healthy air, and in a constitution otherwise healthy, give a check to the perspiration; a small addition of heavy food that is fat, rancid, or coarse, produces sickness, and that perhaps a spasm in the common gall duct; the consequence is, that the bile regurgitates in a smaller or greater proportion, an additional stimulus is impressed upon the blood, a constriction seizes the external vessels, a shivering fit, quick pulse and heat, come on, and thus a bilious fever is produced. Let the humours be spoiled a little more, and the obstruction of the viscera increased by any improper diet, &c. the heated habit increases the tendency to putrefaction, and we have a remitting or continual fever, commonly called a putrid fever. Place such a patient in an hospital, and an hospital fever is produced. To this state add the anxiety of a criminal about his impending sentence, and the putrid dirty air of a jail, and you have a jail fever. Add infection *sui generis* to unventilated air, or the stink of a common sewer, or of a putrid body, and you have the scarlet or spotted fever, or the malignant sore throat. Again, produce an infectious state of the air, conveyed immediately from a body ill of the small-pox, pestilential fever or plague, and the pestilence will spread itself over the country, pay no attention to the necessity of changing the air or bed-linen, give putrescent meat and drink, enflame the circulation

by hot cordial medicines, great fires, &c. and you render the disease incurable wherever it attacks. In this highest state of putrefaction the humours become more and more dissolved, till the whole mass is corrupted, and at last its consistence is by the putrefactive ferment so far dissolved, that there is no order, coherence, or continuity, and the morbid state of the blood will appear in blue and blackish spots on the surface of the body, but deeper than the skin, which being pricked by a needle, appear insensible, and give no pain. When the blood is in this broken and disunited state, nature strives, but in vain, to expel the enemy by stool, vomiting, effusion of blood, and profuse sweating, which was the case when the plague, called the sweating sickness, was in England. The blood being in the utmost state of disunion, by some particular disposition of the body at that time, rushed through the pores of the skin in such abundance, that nature was soon exhausted, and the evacuation proved mortal in a few days. If every possible method be used to mitigate the violence of the disorder, and nature at the same time strong enough speedily to throw the contagious matter towards the surface of the body in swellings called buboes or carbuncles, which may be brought to suppuration, or laid open with a lancet, it is possible by that means to save the vital parts, and the patient may go through the fiery trial, and at last come off victorious. When nature proves deficient, and has not strength enough to make this effort, the agonies of death are near at hand.

Plethoric and hard-working people, and men of strong and tense fibres, are particularly liable to inflammatory fevers. When the vessels are full, and the fibres tense and compact, any rarefaction of the blood, hard drinking,
violent

violent exercise, heat of the sun, food too hot and high-seasoned, and in too large quantities, will interrupt the animal functions, and bring on a fever. In fevers purely inflammatory, the patient is not afflicted with depression of spirits and want of rest, but tortured with acute pains in the head, breast, belly or limbs. In the part affected there is the greatest pain. There is no risk of a delirium, unless where the inflammation primarily affects the brain, or in the very last stage of a dangerous fever. The blood taken away in inflammatory fevers has a crust upon the surface of greater or less thickness, whiteness, glassiness, or yellowness, and unless the bleeding has been too long delayed, we find the under part of the crassamentum adhering so strong and consistently to the crust, that you cannot shake it off, though you lift it upon the point of a knife or fork. When the inflammation is very great, you may stir the body of crust and crassamentum for a minute on the serum, before it will tinge the latter with red. After a second or third bleeding, the size is less, and the crassamentum of a more florid colour and less adhesive, and the violence of the symptoms diminishes as the colour and consistence of the blood alter, the pulse gets softer and softer, and the fever goes off with a thick water, often on the critical days marked with such precision by the antients. If the liver be enflamed, the blood has a buffy crust, which is tinged, as well as the serum, with bile; then the blood is not so glewy, nor is there occasion for so plentiful bleeding, for bad effects will attend too free a use of the lancet. When the crust has a greenish hue, and is so pellucid that the crassamentum may be seen through it, in that case great care must be taken not to take away too much blood. When the veins are very full, and the body labours under a plethora, a few ounces

of blood may be taken away, but the operation should never be repeated if the fever has a tendency to putridity. In all acute disorders, however liable to turn putrid or malignant, a moderate and early bleeding never does harm, where it seems at all indicated by the degree of the fever or other symptoms; but great mischief often arises from the neglect of it even in putrid diseases. In general, the inflammation is so insignificant, that the necessity for bleeding happens but seldom. Intemperance, effeminacy and idleness, occasion the greater number of fevers to which people are now liable; and being entirely putrid, or very much tending to putridity, the use of the lancet is very rarely required. However, when an inflammatory appearance attends upon a putrid fever, it should be overcome as speedily as possible, because both classes of symptoms cannot be treated together, and the beginning is the only time for combating the former. After bleeding gentle laxatives are proper; they generally bring off a large quantity of bile, which seldom fails, if not evacuated in the beginning either by nature or art, to occasion a most dangerous lax towards the close. When the inflammation is very high, bleeding is absolutely necessary, and must be repeated according to the strength and danger, and also to prevent abscesses. A hard, equal pulse, that feels like a chord, indicates an inflammatory state of the juices, a fulness of the vessels, and obstructions from fizy dense blood in the capillary vessels. When bleeding is indicated, it should be repeated till the siziness and stiffness of the blood yield to the bleeding, and the pulse softens. When the pulse begins to shake or become unequal, bleeding is then dangerous, and must not be repeated. Great care must be taken not to bleed too often, lest the strength of the

attention

constitution be too much reduced, for that should always be preserved with the exactest caution, that it may be found able to support the conflict, and overcome the dangers with which it is threatened.

Feverish heats are removed by abstinence, rest, quiet, cool air, plenty of fruit, and cooling acidulated drink milk-warm, as lemonade, crema tartar drink with sugar and a little lemon-peel, water with toasted bread and the squeeze of a lemon; the air of the room purified and cooled by sprinkling the floor with vinegar; the patient should lie upon the bed with his cloaths on and one blanket laid over him, and his head high: to give a free circulation of air, the curtains should be tied to the bed-posts. There should be as much fire in the room as is sufficient to keep the patient from chilliness, that the skin may not shrivel up, and the perspiration become obstructed by a spasmodic constriction of the extreme vessels. The patient should live mostly upon water-gruel. If he is costive, a stool or two should be immediately procured by a clyster. If he is sick, complains of a disagreeable fulness at his stomach, or has a bad taste in the mouth, a gentle emetic should be given. If the bile be very redundant, and flow into the stomach, occasioning much sickness and reaching, nature directs by such efforts that it should be carried off; for as long as it is retained in the body, anxiety, heat, weakness, head-ach, &c. will continue; but as soon as the body is freed of the bile, either by nature or art, the pain and fever vanish of course. If vomiting does not arise from inflammation, it is best cured by vomits; and when the feverish symptoms do not disappear after the first emetic, it may be repeated, and next day a gentle dose of physic should be given. Slight colds and fevers, which, if not attended to in time, would have been

violent and dangerous, may be removed soon, and with little trouble.

It is of the greatest consequence to follow the indications given by nature in the beginning of fevers, either for bleeding or purging, since by delays the disease becomes too violent, and the putrefaction increases as the strength diminishes, so as neither to sustain long the force of the struggle, nor admit the use of powerful medicines for the cure.

The first thing a physician should enquire into, in every illness, and particularly in fevers, is the state of the first passages, which should be cleared of any noxious matter, which would not only hinder the operation of medicines, but would be converted and assimilated by the disease, and acquire a malignant quality, from which the distemper might receive strength. Those low fevers that hang so long upon the constitution, arise from loaded viscera, which send into the blood, from time to time, fresh supplies to keep up the fever. A miliary fever may continue six weeks, if the body be costive, and the cure trusted to sweating: it is therefore of the greatest importance as speedily as possible to carry off the matter that occasions and keeps up the fever: it is the way to cure speedily and pleasantly, and is the best controul a physician has over fevers in shortening their periods. There is not a symptom more common in putrid fevers than a purging, attended with great debility and oppression, a quick and irregular pulse. The fœtor of what is discharged in dysenteries indicates purging; nature directs it, and endeavours to throw off the offending matter, and to depurate the body by the bowels. This discharge should be encouraged by gentle laxatives, and any attempt to check the looseness would do great mischief, and most probably prove fatal

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to the patient. In such a case every stool gives fresh strength, and proportionably weakens the complaint.

If due attention is paid in time to clear the first passages by repeated emetics, gentle laxatives and clysters; by emptying the vessels, if too full, and by taking off the siness of the blood by venesection, little more will be required than abstinence, cool air, and soft subacid drinks. If these indications have been neglected too long, and the fever does not yield, diaphoretic antimony, with emetic tartar, or Dr. James's powder, should be administered. To those that can afford it I give the Deobstruent powder, which is greatly preferable, in inflammatory cases, to any other medicine I ever saw administered, yet the expensiveness of it often prevents me from giving it 'till other medicines have failed. The tongue appears covered with a kind of film like muslin, more or less thick according to the degree of the inflammation; but as the violence of the symptoms diminishes, the pale redness returns; the urine then deposits a turbid sediment, which, though it is not the solution of the feverish matter, as is generally supposed, enables the physician to judge of the nature, duration, and issue of the disease.

In genuine inflammatory pleurifies and peripneumonies, the life of the patient depends upon plentiful bleeding at first. Thirty, forty, or more ounces, may be taken away at different times in a few hours, if the symptoms are violent. The arm need not be tied up between the bleedings, or if it is, the patient should be apprized of the immediate occasion there may be for opening the bandage, on examining the appearance of the blood and alteration of the pulse. One may know when the blood is enflamed as it flows from the vein, by having a blueish cast,

cast, and the vapour arising from it appearing of that colour. The appearance of the blood and state of the pulse must guide the physician in bleeding, yet even these are liable to variation. The blood will sometimes discover no fizziness, even though taken in the beginning of an inflammatory complaint; yet when a second or third quantity is taken, it will be covered with a thick inflammatory crust, which shews that a larger quantity should have been taken at first. The pulse likewise does not fall immediately to the standard which is wished, yet in a short time after, if the bleeding has been sufficiently plentiful, it comes to be rather slower than natural. It is a very bad and dangerous symptom if the pulse falls immediately after bleeding.

In peripneumonies, where the disorder shews great violence, drawing a large quantity of blood seldom fails to give immediate relief. This may be done in any period of the disease, even after the straked and purulent spitting is begun, if the symptoms are not mitigated by it; but if, upon the spitting coming on, the pains in the breast and difficulty of breathing abate considerably, in that case any evacuation would be improper, as the expectoration, with the assistance of a gentle sweat, will for the most part prove a remedy. When the pain remains obstinately fixed after large and repeated bleeding, a blister applied to the part will be of great use.

In a phrenitis fourteen or sixteen ounces of blood should be immediately taken from the temporal artery, except the patient, before the attack, had lived very freely, and indulged himself in the immoderate use of spirituous liquors, high and luxurious eating, and immoderate venery; in such a case not above five or six ounces of blood should be taken. Blisters, antimonials, mercurials, synapisms,

synapisms, and all heating medicines, are hurtful. Acids in large doses, wrapping the lower parts of the body in a sheep's skin immediately taken from the body, or in flannels wrung out of warm water, are very serviceable. In violent deliriums and vigiliæ, and in alarming inflammatory fevers, the Deobstruent powder, if a large and plentiful bleeding has preceded the use of it, will give astonishing relief; the patient, soon after taking it, generally falls into a profound sleep of several hours, and awakes with a soft pulse, and free of fever or delirium.

When the inflammatory symptoms are subdued by antiphlogistic medicines, and the vigour of the re-action is abated, and when the symptoms of debility are prevalent, either alone or in conjunction with those of putrescency, the bark, or something of equal virtue, becomes a necessary medicine; its tonic and antiseptic virtues are then most urgently required to obviate debility and correct putrefaction. When symptoms of great depression of the vital powers prevail without those of putrescency, the bark or Tonic tincture should be given. Debility, without remission or intermission, in all periods, and in all fevers, indicates Tonic medicines, which seldom fail, if antiphlogistic deobstruent medicines have been given before. Local inflammations tending to imposthumation, gangrene, mortification; also inflammations subsisting from topical laxity, attended with a general debility of the system; when there are no signs of greater impetus of the blood in the vessels of the part affected, require the same method of treatment. When from any cause the tone of the system is destroyed, and universal relaxation induced, which is known by weakness of the stomach, indigestion, loss of appetite, paleness, emaciation, and the common marks of a ruined constitution, the bark, or
some

some other tonic medicine, becomes absolutely necessary : but cordial medicines should not be exhibited too soon. To be over-cautious in prescribing cordials is erring on much the safest side, as I am convinced that being too speedy in giving them has killed a thousand times as many persons as the opposite excess. Allowing the patient's strength to sink altogether, is without doubt improper ; yet in all feverish complaints the patient's weakness is not to be computed from his own feelings, nor from the pulse ; these often only shew the greatness of the disorder ; but from the length of the malady compared with its violence, and having a proper regard to any great evacuations which may have happened ; an attention therefore to these circumstances will be the best guide in directing cordials. When the disease is so far abated as to leave little worth notice but the weakness, cordials in such cases, generous diet, the Peruvian bark and Tonic tincture, have most excellent and immediate effects ; and a physician should be very watchful to perceive this change in the disorder immediately when it happens, lest the fever terminate in a putrid one, which is generally the case when an inflammatory fever is not properly treated at first. In some cases the symptoms are so violent, as to carry off the patient before the complaint has time to discover signs of putridity.

In putrid fevers the symptoms are very different from those of the inflammatory, and require a very different treatment. In the slighter kinds of putrid fevers the patient is seized with great weakness and loss of strength, lowness and uncommon dejection of spirits, frequent involuntary sighing and weight about the heart, a general coldness and insensibility : he is very apprehensive of danger, and expresses much anxiety about his recovery.

Vomiting,

Vomiting, nausea or sickness, is an universal symptom. Sometimes a great heat and load affect the pit of the stomach, with perpetual vomiting of porraceous or black choler, and a most troublesome singultus; the matter discharged has frequently a very nauseous smell; all kinds of drink seem bitter and mawkish; the breast is generally affected with a tightness and cough, and the head is often heavy with a dull sense of pain, seldom with a delirium at first; but the patient sleeps little night or day, occasioned by the morbid quality of the blood and the relaxed state of the fibres; the nervous fluid is irregularly secreted and imperfectly distributed over the body. During this watchfulness the patient has a silent, gloomy, thoughtful and dejected countenance, and the watchfulness at last produces a delirium, though some are never delirious, but all are under a stupor or confusion. The delirium shews itself in a variety of shapes; the patient is then talkative, sullen, melancholy, revived, outrageous, frightened or unconcerned, according to circumstances; and the urine becomes pale; cough, spitting, flying pains or pleuretic stitches, commonly very gentle, are sometimes felt thro' the body; the pulse low, small, frequent, and unequal, often varying both as to strength and fulness, but seldom so full and strong as to indicate a general inflammatory state of the blood; the tongue white and very foul, the thirst inconsiderable; when raised from the pillow, the patient complains of a giddiness. The attack begins with shivering, and small interchanges of heat and cold, total loss of appetite; at night the body has no considerable degree of heat, but a clammy, foetid, damp feel; in some petechiæ appear; in others the infection first appears with a severe trembling, particularly of the hands, sometimes a sense of numbness in the arms and weakness of the limbs,

limbs, succeeded by pains in the head, and in all the bones, particularly in the back; and the shivering, resembling the cold fit of an ague, returns two or three times in twenty-four hours, sometimes only once a day, and in others it returns every other day like a tertian fever; the partial, and sometimes profuse sweats, succeeding the cold fit, afford no relief, but serve greatly to weaken the patient. In some the infection appears with frequent faintings, or in a flux, in others with a fever. When the first attack is from a fever, a gentle natural supervening flux proves salutary; and when the purging comes on, it is a most favourable symptom, and the patient is immediately restored to health. It is observable that the natural crisis of the infection is often by stool; but a severe flux indicates the mischief to be fixed, and as it were concentrated in that canal; then the patient has severe griping, and the belly is often swelled and tense after profuse stools. Where the contagion makes its first appearance with a flux, the accession of a fever carries off the patient. For the most part, when the patient lies warm, the body is costive; when cold, a diarrhoea is a common symptom. As the fever advances, the patient becomes more languid, low and oppressed, the head stupid and heavy, the hands tremble, the pulse sinks, the patient becomes dull of hearing, and at last almost deaf; there are small spasms and twitchings in different parts of the body, which increase into a kind of tremulous motion over all the body, but especially in the wrists, which shake the bed-cloaths and curtains; the patient grinds the teeth, and often attempts, after drinking, with a convulsive motion, to bite the edge of the cup. Sometimes the patient has obstinate wakefulness, with very great inquietude. If the attack be more violent, the symptoms are consequently more severe and dangerous,

dangerous, the sickness or vomiting is greater, more frequent looseness and dejection, profuse sweats and deep depression of spirits, obstinate wakefulness or great sleepiness, twitching and starting of the muscles; the delirium becomes at last incessant, the patient knows no body, mutters greatly about death and the grave, and is continually picking at the bed-cloaths with the fore-finger and thumb, which is a worse sign than grasping at any thing with the whole hand. The tongue is either of a pale red with a shining gloss, a little moist, with a thin blueish film like milk and water, or smooth and dry as if varnished over, or rough and brown, with black spots or streaks down the middle, and sometimes black with a horny appearance, and deep chops, but sometimes soft and moist to the last, with a mixture of greenish or yellow colour, a black furring or glare about the roots of the teeth; the blood viscid, fizy, and covered with a yellow gluten half an inch in thickness, or with a blueish green glutinous size on the top, and the under part of the crassamentum is of a loose, flabby texture, like liquid gore. These are symptoms of the different degrees of putrefaction. The glutinous part of the blood seems most qualified to retain the infectious particles, and being separated from the mass of blood, is deposited in larger quantities in different parts of the body, where it produces ulcers, destroys the continuity of the neighbouring parts, and the rest of the blood becomes more loose and dissolved. The contagion dissolves the blood, but the gluten is principally and chiefly concerned. If the tip of the tongue grows moist, and the hardness upon the edges gives way, it is a good sign; but if the tongue be brown or black, dry, stiff, and scored, it is a sign of a high degree of putrescence. If the tongue appear like raw meat, it is a
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sign that apthæ will appear; much wind seems to struggle for a passage. If the feet are dry, and covered with a black glare or glue, which adheres very closely, it is a sign of the greatest malignity of the disease; and when that matter drops off, or is rubbed off with ease, it is a good sign. A sunk, muddy, lifeless appearance of the eyes, expressive of the utmost dejection, or watery, with some streaks of blood, and often insensible even of light; an offensive stench from the breath, and mawkish taste in the mouth; when the blisters do not fill, or discharge a greenish yellow or stinking matter; and when the skin has a yellowish tinge, disagreeable to the sight and painful; the face pale and sunk, great difficulty in swallowing; attempting to speak, but unable to articulate a word; insensible to the calls of nature, or of any evacuation: these are all bad signs. Issues, blisters, and setons, are outlets for the infection to be freely discharged from the body; and when natural suppurations happen, it is a very favourable symptom. Swelling beneath the ears, bleeding at the nose, or by urine, are bad, and indicate a great dissolution of the blood; and if at the same time reddish suffusions, broader than miliary eruptions, or scarlet spots, which do not rise above the surface of the skin, and disappear in a few days, are observed on the breast and other parts of the body, the putrefaction is still advancing, and the danger greater. The appearances of the spot are very various and mutable, sometimes black, pale, red, smooth, round, with a black rim or spot in the middle; at other times red and inflammatory, rising above the surface of the skin in clusters, or in streaks upon the skin; sometimes vanishing or faintly appearing; at other times full, protuberant, and very visible, varying their appearance in the space of an hour; at other times small dun petechiæ appear,
chiefly

chiefly in the bend of the arm and neck; the pulse is at that time as variable and uncertain. If the miliary eruptions are very numerous, and especially if scarlet, with little reddish or blueish spots interspersed, the case is very dangerous, and often fatal; and if there be a great discharge of blood from the nose, or in the urine, it indicates a very great dissolution of the blood, and little hopes of recovery; vibices sometimes appear, and the whole skin is of a dusky hue, the breathing laborious, interrupted with frequent sighs, and the taste entirely gone. These symptoms are followed very soon by obstinate hiccoughs, and loose stools come off without the knowledge of the patient, who has not strength to retain either the excrement or urine. If the looseness ceases, and the noxious matter makes a transition from the bowels to the stomach, and occasions wind and hiccough, it is no bad sign, and vomits should be immediately given, and repeated, to endeavour to evacuate the noxious matter. Vomiting at this period, when such symptoms appear, is of the utmost consequence; it lessens the quantity of malignant matter, and gives the rest a direction to the glands of the mouth; and we often see it translated thither, and appear upon the tongue, mouth, and œsophagus, in form of small white ulcers, which increase till the roof of the mouth is covered with a white substance, which comes off in sloughs and scales, and the ulcers discharge a thin watery humour. Soft emollient gargles, steams of hot water, &c. are of use to soften and smoothe the throat and mouth. If the eruptions are thrown out plentifully upon the skin, and fill, ripen, and gather white heads full of matter, the patient has a great chance of recovery: if nature has not strength to separate from the blood the more putrid particles, and to deposit them upon the skin, in that case the

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eruptions

eruptions flatten and go in; and the patient dies upon the eleventh or twelfth day. But if the symptoms are much mitigated when the eruptions fill, then, if care be taken, a recovery may be insured. If the symptoms remain after the eruptions appear, and fill as before, and the pulse continue low and oppressed, the head muddy, light, confused and bewildered, and deep sighing and wakefulness, nature is exhausted and quite overcome, and the patient often dies between the fifteenth and twentieth; sometimes the vital powers will struggle till the twenty-fifth or thirtieth, for the crisis of this fever happens at no fixed period, but the patient is then extremely weak and low, and in a kind of a torpid or lethargic state, except in the paroxysms, which rouse the vital powers a little, and death and life seem to hang balanced in equal scales; and if the patient does not get worse, he has a chance of recovery. When scarlet and purple spots appear, and don't rise above the skin, the disease is still more virulent, the putrescency of the blood highly infectious, all the former symptoms are greatly exaggerated, and the perspiration and effluvia of the patient fill the air with malignant matter, which will carry the infection from one to another, and the winds which drive the air, loaded with putrid and deadly matter, will waft it from place to place to a very great distance. In slow fevers the urine is various, and alters from day to day in colour and consistence, but often pale or yellow; in the increase the sediment is sometimes thick, rough, full of scales, and of a whitish furfuraceous appearance, or like water mixed with brownish clay, which is a sign that the fever will run very high. The stools in general are very plentiful, not costive, nor very lax, in a fermenting state like barin, and very foetid; sometimes involuntary, colliquative, ichorous

ichorous or bloody, and of a cadaverous smell; the voice low and slow. If the patient be of a scorbutic habit of body, the symptoms are much exasperated, and of the most dangerous kind. Miliary, erysipelatous, or herpetical eruptions, appear for the most part in the extremities first. These eruptions gradually grow livid, thin, black, and gangrenous, attended with or producing fordid and sanious ulcers, spinæ ventosæ and caries of the most obstinate and dangerous kind, spreading always upwards, seldom or never downwards; the teeth often fall out, the gums swell and bleed, and the jaw becomes carious. The patient has a constant thirst, the skin dry and hot, the pulse small and quick, the eyes staring, or moving quick, and looking wild, with a despairing, moving aspect; the tongue moist and tremulous; the patient restless, and sometimes delirious. If nature has any remains of strength, she endeavours to disburden herself; and generally a little below the knee carious or cancerous ulcers make quick ravage, attended with most exquisite pain; and for the most part the curtain soon drops, and forces the patient to take a final leave of the world. The crisis of this fever happens at no particular period; it sometimes ends in a fatal flux, consumption or wasting. In contagious fevers people are most subject to relapses, which are in a degree proportioned to the degree of the fever.

If we attend to those symptoms which usually shew the stomach and bowels to be out of order, we shall soon be convinced, without having occasion to examine the symptoms one by one, that the primary seat of the complaint is in the primæ viæ, and that the body is gradually infected, and the whole blood contaminated from the causæ morbi being transmitted from the stomach and bowels into the body, like the stream that is polluted from the fountain.

When we see one thing follow another, as often as they come under the cognizance of our senses, we conclude them cause and effect; although the cause is not manifest, we still think it exists, and that the other is the consequence of it. Let us apply this to the present case. An emetic, any thing considerably putrid, bilious or acrid, an overloaded stomach, a vast variety of substances, when received into the stomach, bring on a great weakness, dejection of spirits, coldness of the skin and extremities, quickness, inequality, and weakness of pulse, coldness with sweat upon the face, confusion and giddiness of the head, oppression and nausea at the stomach, which are to be removed only by the offending cause being evacuated; and if it be not, the rest of the body soon shares in the calamity, and other symptoms appear, receiving only a little variation in different patients, from the diversity of constitution and state of the body. The symptoms only indicate what progress the disorder has made, the quantity and virulence of the offending matter, and the violence of the complaint. A knowledge of the constitution, the state of the atmosphere, and the epidemical disorders prevalent at the time, can only lead the physician to a true knowledge of the disease. A judicious physician will first make it his business to know the prevailing epidemical diseases of the season, and then learn, study, and make himself well acquainted with the temperament or idiosyncrasy, or particular constitution of the patient, before he presumes to prescribe. The symptoms now mentioned are the leading ones in nervous, intermittent, putrid and malignant fevers, diarrhoeas and dysenteries. Have we not then good reason to affirm, that the primary cause of them all is situated in the stomach? From this supposition we are able to account
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For all the succeeding symptoms: when the stomach and bowels are oppressed, they have an unnatural distension, heat and irritation; they become relaxed, and very sensible of irritating applications; the nîsus of the circulation has an internal tendency, &c. a spasm or constriction happens upon the skin. To attempt to remove the spasm upon the surface, is only attempting to take away an effect which would disappear of itself, if the cause was removed; therefore our indications of cure must first be directed to the primæ viæ. Diaphoretics, and all hot, cordial, irritating and tonic medicines, are very improper and hurtful in the beginning of fevers; and is a practice which, of all others, most effectually tends to forward the complaint, and exaggerate every symptom. Putrid and infectious fevers are a heavy calamity, and the injudicious method of treating them has contributed greatly to render them disastrous. The injudicious exhibition of heating sudorifics and profuse sweating, which stimulate and urge on the blood, and waste and fatigue the patient, have added greatly to their malignity; for sweating cannot be useful at first, except the infection is very slight; sweating, if it could be obtained, only weakens and fatigues the spirits, relaxes the body, inspissates the blood, increases the disorder, and hastens its progress by hurrying the offending matter faster into the constitution. Towards the turn, when the cause of the disease has intimately mixed with and contaminated the blood, or after due regard is paid to the alimentary canal, by clearing the stomach and bowels of their contents, then some gentle diaphoretics, if the vital powers are not too much reduced, are of infinite service, and will work a cure as if by a charm. When the constitution is much weakened, and nature unable to do her part, and what is required of her to assist the

operation of such remedies, and when gentle diaphoretics have been continued for twenty-four or thirty hours without any visible sign of recovery, then cordials and tonic medicines must be called in, and the bark, with vinegar, must be poured down without regard either to weight or measure; but I verily believe that a tea-spoonful of the Tonic tincture will do more towards forwarding a recovery, when the danger is very alarming, than half an ounce of bark. It will also be necessary sometimes, when the complaint has not been properly treated at first, to rouse all the latent powers of nature by blisters and other stimulants, to get the better of the enemy. When the battle is hot, all the auxiliaries must be called in, and nature, though she has borne the burden and heat of the day, and is ready to yield, must be called upon to exert her last and utmost efforts, when it comes to the last push, either to conquer or yield. Blisters are certainly of wonderful service in malignant fevers. If the symptoms remain after the administration of a vomit, clysters, &c. or should the exhibition of them be altogether neglected, or unluckily delayed too long, or the patient injudiciously treated with bleeding, &c. where the proof of infection is evident, recourse must speedily be had to blisters; they are of great service, and often have sudden good effects: these are to be applied to the back, if the head or limbs be affected; and to the breast, should the pain seize that part; and applied to the abdomen, they stop the purging. The evacuations caused by blisters are of little consequence, compared to their good effects in stimulating and enlivening the spirits when they are low, languid, sunk, and the body heavy, drowsy and stupid. Riverius says, *Ubi maxima est malignitas, unicum vesicatorium non sufficit, sed plura admovenda sunt; soleo ego in magna morbi scœvitia, quinque*

quinque locis admove, cervici nimirum, utrique brachio, parti interiori inter cubitum et humerum, et utrique femori, parti etiam inferiori inter inguina et genua, cum felici successu. And Etmuller says, Si ulla est febris in qua vesicatoria conveniunt est in primis petechialis. Flannels wetted in boiling water, applied to the extremities, and very frequently renewed, are of use, and greatly relieve the head. This method may be used when blisters would be improper. As blisters are very proper, and sometimes absolutely necessary upon the turn or decline of a fever, they are as improper and dangerous in the beginning and first stages of it; they only serve to hurry, disturb, and confound nature in her operations, and increase the violence of the symptoms. Physicians too often run headlong to the use of diaphoretics and blisters, without attending whether nature gives any such indications. The great credit Dr. James's Powders have acquired, is not from their extraordinary virtues superior to any other medicines, but from their being given towards the last, when such kind of medicines are indicated; and they come in for the whole credit of the cure. I do not deny them to be a very good medicine, yet kermes mineral, diaphoretic antimony with emetic tartar, &c. if given at that time, would answer equally well.

The epidemic disease, which has raged here with more or less severity for two months, and which, though not very mortal, was yet so general that few escaped it, was a slight putrid fever, accompanied with all the slighter symptoms already mentioned, and no doubt arose from the infectious and unhealthy quality of the air. Servants, and those who were obliged to be much abroad, valetudinarians who found every symptom much exaggerated, and young weakly children, were first attacked; but in

the space of eight or ten days the complaint became very general, and when neglected or improperly treated, proved fatal. The patient, as in most infectious diseases, was generally seized suddenly, and very sensibly perceived the infection the moment it seized him. The patient was seized with a slight nausea, which in delicate, weakly, and especially bilious constitutions, and where the body was costive previous to the attack, occasioned vomiting; the head was stupid and heavy, with a slight pain, a bad mawkish taste in the mouth, want of appetite, great weakness and loss of strength, dejection of spirits, soreness of the throat and pain in swallowing, a running of the nose like what is generally observed in common colds; the eyes appear heavy and languid, great restlessness, tightness in the breast and difficulty in the breathing, attended with pain sometimes pretty acute; slight pains or stitches, commonly of short continuance in one place, seized different parts of the body, the extremities cold and somewhat numbed; the cough troublesome, particularly towards morning; the skin seldom hot or dry, but rather cold and clammy; the tongue moist, with something of a whitish lard like glare; the pulse full, and rather quick and hard at first. This fever was sometimes attended with a diarrhoea, which generally gave relief, and all the symptoms except the cough, which sometimes remained pretty obstinate, quickly disappeared. A supervening looseness was always a most favourable symptom, and rendered the use of medicine unnecessary. The stools, whether natural or procured by art, were black, or very yellow. The purging was in some cases, particularly where the patient was very young or weakly, so violent as to require a good deal of management, otherwise it proved fatal. Some had a great load and oppression at the

the pit of the stomach, great inquietude and cough; others had a cough, pain and tightness in the chest, bad taste in the mouth, loss of appetite and lowness of spirits, without any other symptom worth attending to. Sometimes the patient made a large quantity of pale or flame-coloured water, then the cough was less violent, and the skin and mouth dry.

It is unnecessary to examine these symptoms one by one, to prove the fever to be of the putrid kind, and that the seat of the complaint was chiefly confined to the alimentary canal. The infection was not active enough to occasion great prostration of strength, vomiting, and other symptoms of a dangerous malignant fever, yet sufficient to affect the œsophagus and lungs, and slightly to irritate the stomach and bowels. It required the same treatment as other putrid fevers, and soon yielded to one or two vomits, gentle opening physic, as a decoction of dandelion with soluble tartar and tincture of rhubarb, ammoniacum pills, &c. and if it was accompanied with a purging, a few doses of rhubarb emetic tartar and musk, never failed to have happy effects. If when the cough continued troublesome after the other symptoms were removed, a decoction of seneka or some softening expectorant, with a blister upon the back or breast, became necessary; when the cough was very severe, and the pulse hard and full, taking a few ounces of blood did good. If the patient inclined to sweat after the operation of the emetic, by lying some time in bed, and drinking balm or common tea plentifully, he soon got well. But as this epidemic required no particular treatment different from other putrid fevers, I now proceed to mention the general method of cure in all their different degrees of violence; and as they differ only in their degrees of violence, and consequently

frequently require longer or shorter time to accomplish the cure, the same method must be pursued in all.

The cure of putrid and malignant fevers is first to evacuate and wash away the poisonous matter by a speedy and thorough cleansing of the alimentary canal by means of vomits, clysters, or cooling physic. If a gentle natural supervening looseness comes on, it is a favourable symptom, and most eligible in all infectious disorders. As soon as any symptoms of infection are perceived, a vomit should be immediately administered, and repeated as occasion requires, and should precede the use of every other medicine: it will discharge not only the infectious matter fixed in the stomach, but any other noxious stuff from indigestion, which would hinder the operation of other medicines, and being converted and assimilated by the disease, would acquire a malignity from which the distemper might receive strength: by the shake and concussion of the whole frame, it will be of service to rouse the vital powers into more forcible action. An emetic given upon the first appearance of the infection, or upon a relapse, often entirely removes the fever, and never fails to check it. Though bleeding be dangerous in proportion to the virulence of the infection, yet a small quantity of blood taken away in the beginning does good when there is any sign of inflammation, the pulse full, and where the infection is slight, and topical pains or stitches, it should be proportioned to the symptoms of inflammation; but high malignant fevers will not bear bleeding. It is most adviseable to take a small quantity at first, except the indications for bleeding are very apparent, and to keep the finger upon the orifice 'till you discover the state of the blood; if it be sily, remove the finger, and take a little more, proportioning the quantity to the siness of the

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the blood; but this operation in such fevers is not to be repeated, for when it is, it never fails to injure the patient. Fruit and acids in the first stages of this fever correct the putrescent bile, are of infinite service, and ought to be liberally made use of; china oranges in particular; gentle antimonial purgatives, as emetic tartar with crema tartar, antimonial wine with fenna and tamarinds, saline draught with manna, rhubarb with musk and emetic tartar, should be given every hour 'till it begins to purge. All purging beyond a stool or two is not so prejudicial as some believe, when it is procured by some gentle method; strong purges are indeed highly dangerous, yet a gentle cooling antimonial laxative, though it occasions a good many stools, will do no hurt, but, on the contrary, much good, and shews that there was a large quantity of putrid matter collected in the bowels. When there is a purging naturally, it will be best moderated by gentle doses of rhubarb, soluble tartar, &c. A gentle laxity should be supported several days.

Diseases are cured by their contraries, *contraria enim contrariis vincuntur*. Heat is a strong sceptic, consequently cool things, and all cooling antiseptic medicines, are proper: therefore it is of very great importance that the patient breathe in a cool air, to be cautious in avoiding large fires and hot rooms, to lie upon a matras in a cool spacious chamber, and to be so covered as to preserve only a moderate degree of warmth. It is a very material error to expose the body too much to the action of heat, with a view to preserve it against the bad effects of cold, for the influence of cold will be least perceived by those who are prudently exposed to its effects. Numbers are materially injured by too much heat, and putrid diseases in particular are highly exaggerated, and often rendered fatal

fatal by an improper degree of heat. The air cools the body sooner than any medicine internally taken, therefore the renewing, cooling, and regulating the air in a patient's room, is of the greatest consequence, provided always that the intention of keeping up the perspiration be not frustrated. Numberless are the mischiefs arising from depriving the patient of cool air. In putrid diseases it is most particularly necessary, in order to remove the putrid steams. The patient must therefore be kept very cool, the curtains of the bed undrawn, a small quantity of bed-cloaths, linen, bed and room, often changed, the door, and for the most part the windows kept open; no person permitted to stay in the room except the necessary attendants. The patient should be much in the open air, even in the worst stages of the fever; and after he returns into his room, he should be immediately put to bed. Particular care should be taken about the patient's food when he begins to recover, animal food being the last thing permitted. During the illness all acedent food may be given. The state of the air should be altered by making an artificial atmosphere, by constantly smelling to the Tonic tincture, having a bit of flannel wetted in the same, and applied to the stomach and breast, and cloths wetted with it constantly lying upon the pillow near the nose. The room should be sprinkled with the following vinegar, commonly called the Vinegar of the Four Thieves, prepared thus: Take of rue, sage, mint, rosemary, wormwood and lavender, a handful of each, infuse them together in a gallon of white-wine vinegar, put the whole in a stone pot closely covered up and pasted over the cover, set the pot thus closed upon warm wood-ashes for eight days, after which strain it through fine flannel, put it into quart bottles well corked, putting in each a quarter of an

ounce

ounce of camphor. If the infection be very active, throw a little of the tincture over the room.

This method never fails to set the patient beyond danger, and if timeously and effectually pursued, leaves little occasion for any thing else; and if the fever does not go immediately off, the succeeding symptoms prove very mild.

The second intention is to animate, comfort and support the animal spirits, which preside over all the body, govern and assist its functions, and preserve a just œconomy in the whole, to stop the progress of the putrefaction in the blood, to recover the consistence and union of its parts, to restore the harmony of the animal machine, to enable the active vital principle of the body to throw off the malignant matter by a critical separation from the whole mass, and to supply the place with healthy well-conditioned chyle and blood. To do this the Tonic tincture is a most wonderful medicine internally taken, and will, I believe, in no case fail, where the vital powers are not extinguished, and nature deprived of all power to relieve herself, or to assist the operation of medicine. It is equally powerful in preventing infection. The best proof of the efficacy of any method is the success with which it is attended; and was it used in jails, camps and navies, it would then appear how powerful a preservative it is against infectious diseases. The love of life, naturally implanted in all mankind, will no doubt induce them to adopt a method which promises such flattering hopes of safety from so direful a calamity. Were the jails, where so many daily die of fevers, under my inspection, I would undertake to save nine tenths of those that now die of infectious fevers, at a very moderate expence, and also secure the safety of the judges, and of those that are obliged

obliged to attend at trials. I shall here only mention a few regulations which would be of use. As soon as a prisoner is brought to jail, he should be stript of his dirty rags, which should be bundled up, and carried away either to an apartment at a distance from the jail, or lain by in one of the upper rooms appointed for that purpose; for the unshifted linen and dirty rags are sufficient to breed an infection. Let them therefore be stript of every article of their apparel, and not a single thing suffered to remain: after they have lain in steep in hot water and pearl-ashes for twenty-four hours, they should be washed, smoaked with sulphur, and laid by for the use of the prisoner, if acquitted, or for the benefit of the jailer or washer-woman. The prisoner should be washed with soap and water, and some of the vinegar; then he should take some of the Tonic tincture, and continue to take it twice a day for a week, and to smell to some of the same. When his spirits are recovered, and no symptoms of infection appear, he may discontinue the use of the tincture, and return to it if occasion requires; if the air is very bad, a bit of flannel wetted in the same may be laid on the stomach and breast. In place of his own rags, there should be a certain number of dresses made of flannel, which should be dyed red, for the use of prisoners, every one leaving his dress for his successor when he is set at liberty, and receives his own cloaths. Every prisoner should have a clean flannel shirt once a week, which, after being well washed, should be smoaked with sulphur, and every Sunday before they change they should be obliged to wash with soap and water. The straw, hay, or heath, (for no flax or feather-beds should be allowed) may be changed very frequently; the prison should be washed once a week, and so much of the vinegar allowed to sprinkle every room

once

once a day. In the common room a pot full of pitch and sulphur should be set on fire every night as soon as the prisoners leave it; for cleanliness avails much in removing infection; and the smoak of sulphur, wood, &c. purify much. The healthy should be separated from the sick, and no communication on any account permitted. Those who have any sores should not be permitted to mix with the rest, till their sores are healed up by the outward application of the Tonic tincture; a certain quantity of which should be allowed to every prisoner, to be taken discretionally as he finds occasion, when his spirits are low, or any symptom of infection appears. For the preservation of the living, the corpse of a person dead of infection should quickly after death be put into a coffin, interred deep in the ground, and the room immediately purified. The uppermost rooms in jails should be allotted for the sick and those who have any sores, and nobody permitted to enter. Those that are even suspected to be ill ought to be separated from the healthy. A little spot of ground should be allotted for each jail, that the prisoners may have the benefit of fresh air, and by way of exercise they should be obliged to dig the ground. While one party are employed in digging, another set may roll the ground already dug.

These, and some few more regulations, may be put in practice at a very little expence to the public, who would, I dare say, submit to it cheerfully. Mercy and compassion are the known characteristics of the English; and to attempt to awaken their humanity, and to soften their attention to so merciful, so laudable a pursuit as that of endeavouring to alleviate the sufferings and to preserve the lives of numbers of our wretched fellow-subjects, would be an insult to the inhabitants of this kingdom.

It is one great branch of the senatorial office to alleviate, as far as may be, the misery of all the suffering members of the state; and to whom can mercy be more properly extended than to objects in the greatest distress? Many of the wretches for whom I now plead are unworthy; let such answer to the laws of their country for their crimes, and atone with their lives for the injuries they have done to society; but while they live, even they continue objects of compassion, and have some right to the attention of the legislature, who have shewn a willingness to serve the forlorn and wretched even while the most important affairs of the nation loudly called for their wise counsels and deliberations. To appropriate some fund for the purposes already mentioned, would do honour even to English mercy. I have too high an opinion of the honour and humanity of a British senate, to think that one will be found to oppose so merciful and humane an institution. Whoever gives himself time to compare his own situation with that of his wretched, yet fellow-subjects, who are pining and rotting in prisons, and will for a moment forget his own happiness, and recollect the gloomy cells, the grated windows, and the weight of misery they suffer; if he has the principles of a christian and the sensibility of a man, cannot but be deeply interested in any method that can alleviate the calamitous condition of wretched prisoners. And when we consider that many innocent of the crimes laid to their charge, are hurried to prison, and there exposed to direful contagions, which often deprive them of life before they have time to make their innocence appear to the world, it needs no oratory to describe such a situation, nor to plead for the attention of government in their behalf.

Besides,

Besides, the safety of some of the most honourable and useful members of society, I mean the judges, requires something to be done. A day or two before they, and those that are obliged to attend juries, go to the prison, they should take a gentle emetic, or the following purge

℞ Infus. fenæ ℥ii.
 tinct. rhabarbar. vinos. ℥ss.
 confect. cardiac. ℥ss.
 fyr. croci ℥i. M.

and next morning they ought to take the tincture, and while they are in court repeat the same, a tea-spoonful upon a bit of sugar every two hours, very frequently smell to the same, and wear upon the stomach and breast a bit of flannel wetted in it. The court-room should be washed, then sprinkled with the vinegar, and afterwards fumigated with pitch and sulphur. The prisoners, before they come into court, should be washed with soap and water, and afterwards with the vinegar, have clean cloaths, take two tea-spoons full of the tincture, stop the nostrils with a bit of sponge wetted in the same, and keep at their mouth while they remain in court a handkerchief sprinkled with it. With these precautions none will be liable to catch the infection.

In camps, and on board ships, much service might be done by a few proper regulations. No brass or copper utensil should be used in camp or navy; it were well if they were laid aside in every private family, and tin or bell-metal substituted in their place. None should use the bed-pan, or any other utensil, made use of in the chamber of any person labouring under an infectious

disease. The bedding, cloaths, and every thing in the room, or belonging to the infected person, should be purified before they are again used. As soon as the patient begins to recover, he should be removed from the room, where the seeds of contagion may be lurking, into a pure fresh room, which will prevent a relapse. None should use the privies frequented by those ill of infectious diseases; for camp dysenteries, and indeed most dysenteric fevers, are generally both infectious and malignant.

The medicines next in goodness to the Tonic tincture are the Peruvian bark and strong red-wine, which, to be of use, should be poured down as fast as the patient can swallow. One, two, or three ounces of a strong decoction of the bark with red port, taken every hour, towards the decline of putrid fevers, is a very good medicine, but a smaller quantity than what I have mentioned will not answer any useful purpose. When the first intention of cure has been neglected, 'till the morbid matter has entered the habit and mixed with the blood, gentle diaphoretics, as Dr. James's powder, &c. may be given at the same time.

CHAP.

C H A P. X.

Of DYSENTERIES.

DYSENTERIES require the greatest care and most speedy relief, as they often prove fatal, not only when they are a primary or original disease, but are very commonly a symptom of the most dangerous state of other diseases. There is always danger in every disease that begins with a purging, and no physician can answer for the consequences of delays in such cases. Hippocrates says, every dysentery is dangerous that begins with a fever, and in which we perceive a great variety of excrements. Old and very young people are most subject to fluxes.

Dysenteries are most frequent in moist hot countries, where people live much upon salt provisions long kept, and have few or no vegetables, use little exercise, and are crowded in unhealthy confined places. Every thing that promotes putrefaction and putrid and malignant fevers, is a strong pre-disposing cause to dysenteries. They appear commonly at the time that putrid and malignant fevers rage, and are only a particular determination of the corrupted humours to the intestines, and there the fever is concentrated. If the primæ viæ give way, a flux ensues; if the corrupted humours are retained and carried into the habit of the body, till the whole mass of blood is dissolved and becomes putrescent, continued putrid and malignant fevers are produced.

After what has been already said upon infection and infectious diseases, little more is here necessary, as every

cause, such as moist, hot, and changeable air, putrid effluvia, passions of the mind, unwholesome food, indigestion, &c. which produces putrid fevers, will occasion dysenteries, when the bowels are weak and relaxed. I have already endeavoured to explain how these causes produce putrid fevers; the same reasoning holds good in fluxes, with this only difference, that some few things, as unripe fruit, new and sharp liquors and strong purges, which have not a natural tendency to produce putrefaction, will, from their sharpness and irritating quality, produce dangerous fluxes.

The intestines are the first part of the human body that becomes putrid; therefore fluxes are very common and fatal in armies, and on board ships bound on long voyages. They are infectious, rapid in their progress, and very mortal, and the cure is attended with much difficulty and uncertainty; yet if the medicine here recommended was used in his Majesty's army and navy, it would be found the best yet discovered, in this country at least, for the bowel complaints to which soldiers and sailors are very liable, and would be the means of preserving thousands of lives. In fluxes, and in the watery gripes of children, it operates as a specific.

Purgation is an excretion by the anus of all things that can flow from any part of the body through the intestines, which are a long canal, beginning at the lower orifice of the stomach, and ending with the rectum at the anus. They have numerous convolutions or turnings, which fill the greatest part of the abdomen. See a description of the abdominal viscera in my General System of Physic, page 439.

The sure diagnostics of a dysentery are large bilious stools, a tenesmus, gripes, and sometimes a falling down
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of the rectum and strangury. The stools are at first thin, small, slimy, frothy and frequent, owing to the irritations of the putrid colluvies, and the great sensibility, tenderness, and relaxed state of the bowels. In the beginning there is generally a little blood mixed with the fæces, occasioned by a rupture of some of the small vessels in the rectum, which give the stools a blackish appearance, like the lees of wine: if they are mostly bloody, then the dysentery is called the bloody flux. The patient at first is seized with the common symptoms, which universally attend all putrid and infectious diseases: he complains of a sense of oppression and nausea at his stomach, indigestion and a total loss of appetite; the food turns sour in the stomach, the spirits low, and a bad taste in the mouth. The fever accompanying dysenteries is most commonly of the low malignant kind, especially if the dysentery be contagious. In the advanced state of the flux a lientery comes on; then the aliment passes off undigested, and the villous coat of the intestines is at length, by the putrid acrimony, abraded and voided by stool. In a lientery, Hippocrates informs us, that the food is voided undigested. In the coeliac affection the food is discharged after it has undergone some degree of concoction, but so imperfect, that the kind of food may be known by the stools. A lientery is sometimes a distinct disease, arising from a weakness of the stomach, particularly the pylorus, and may be cured with much certainty by the use of the Tonic tincture.

In dysenteries the fæces have, from the beginning, a very offensive smell, but when the mortification begins, they are highly contagious. The contents of the stomach and bowels being in a very advanced state of putrescency, act as a powerful sceptic upon the food as soon as it is

received into the stomach, and produce a violent fermentation; the food runs rapidly into a state of putrefaction; a great deal of windy flatus is detached, producing spasms, which occupy different parts of the intestines, and occasion great pain. If the patient discharges wind frequently, either upwards or downwards, he is proportionably less tortured with spasmodic pains; but as the stools, which are very frequent, are always preceded by sharp griping pains, the patient enjoys little ease all the time, unless the sensibility of the nerves be deadened, the contractile motion of the solids impeded, and the pain quieted by opiates, fomentations, &c. When the purging continues long, there is a great waste of flesh, faintness, a small and depressed pulse, and a dry and shrivelled skin. If there be a total prostration of strength, a low and malignant fever, sore throat, aphthæ, involuntary and cadaverous stools, then a gangrene is begun; if there be a hiccough at the same time, we may conclude that the bowels are in a state of mortification.

People of bilious constitutions are most liable to dysenteries, because the bile is a sharp stimulating fluid; one great intention of it is to lubricate the bowels, and to keep up their peristaltic motion; and when the irritating quality of the bile is at any time increased by putrefaction, it occasions purging and griping. The bile, though it does not arrive at a high degree of putrescency, becomes sooner putrid than any other fluid in the body.

The sliminess of the stools in dysenteries arises from that slimy substance, which is plentifully secreted to besmear, cover and defend the internal surface of the bowels from the sharpness and hardness of the excrement. When the contents of the intestines are very sharp and putrid, and irritate the bowels into frequent contractions,
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the mucus of the bowels is carried off with the stools, and the bowels are left tender, bare, and exposed to any irritating matter, which stimulates the glands, and occasions a large secretion of a serous watery fluid, and obliges the patient to go frequently to stool. The cutaneous perspiration and discharge by urine are also diminished, which occasion the stools to be more plentiful and watery. The blackness of the stools arises from putrid and corrupted bile and blood. The rapid fermentation and tendency to putrefaction occasion the stools to be frothy and puffed up like yeast. The urine is either high-coloured, or preserves its natural appearance. The degree of danger is known from the thinness, quantity, frothiness, blackness and foetor of the stools, the degree of languor and depression of strength and spirits, and from the weakness of the pulse. Yellow sharp bilious stools, like the yolks of eggs, and rusty green stools, are very bad, unless they are critical, but stools of a saffron colour are rather worse. When they are reddish, they are very dangerous, but not so fatal as the black. Prosper Alpinus says, that a looseness, with red stools, is very dangerous, and the more so as it proceeds from a fault in the liver. Hippocrates represents black stools, either with or without a fever, to be very dangerous. A liquid stool, says he, voided hastily and at once, or by degrees, is very bad; the one occasions watchfulness, and the other death. All these evacuations are unprofitable, says Alpinus, both because they are not sufficient to remove the cause of the disease, and that they denote the great redundance of humours always fatal in a violent disease; or else that the power of nature is languid and spent, and attempting to discharge the noxious humours, is not able and sufficient for the purpose.

The ferous dysentery is most common in wet moist weather, in fenny countries, and in autumn. Dr. Willis says, that about the autumnal equinox, very many are seized with an unbloody, but sharp and most dangerous dysentery. A disease, that seized the patient without any manifest cause, with violent vomiting and frequent watery stools, so that he was quickly reduced to the greatest weakness, and into the most frequent faintness and loss of strength. I have known many strong men, that but a day before were in good health, yet in twelve hours they were so dispirited under the tyranny of this distemper, that they seemed to be in a dying condition, with a weak pulse, cold sweats, and difficulty of breathing. All evacuations, (says the doctor) as bleeding, purging, and vomiting, were hurtful, but cordials were useful. Sydenham does not say that people were seized with this complaint all of a sudden, or that it quickly killed the patient that was just before in health and vigour. It began with shaking and trembling, which were followed with an universal heat; then came the griping, which was quickly followed with stools. Sometimes the griping was the first symptom, and the purging followed; but in general the patient was first feverish, the tongue deeply furred with white and sometimes black, the spirits low and much oppressed, the strength exhausted, with every symptom of a malignant fever. This disease did not only occasion the greatest pain and sickness, but brought the patient into the greatest danger; for the vital powers being exhausted by the frequency of the stools, before the violence of the complaint can be mitigated, there is continual danger of the death of the patient. The extremities are very cold and damp, and the patient becomes insensible

insensible before death. Sydenham believes it to be a particular fever turned inwards upon the bowels.

In this, and every other dysentery, the nîsus of the circulation is certainly much inverted, and turned from the surface of the body upon the internal viscera, which occasions a plethora, relaxation, and increased sensibility of the internal vessels; the serous humours, which in a healthy state pass off by urine, also the matter discharged by insensible perspiration, likewise the putrid and dissolved state of the whole mass of blood from infection, &c. afford a very great flow of redundant humours upon the intestines. Women, whose monthly courses are stopped, are very liable to bloody fluxes and dysenteries from plethora.

A dysentery, whether simple or symptomatic, arises from a preternatural irritation and sensibility of the bowels, and a great discharge of serous and putrid humours into them. The cure must be attempted by removing the stimulating cause; by blunting the acrimony of the humours, and correcting their putrescency; by sheathing the bowels; by strengthening and restoring the tone of the vessels; by preventing the flow of humours upon the bowels, and directing the nîsus of the circulation to the external parts.

Though the humours are much disposed to putrefaction, yet fruit and any acid antiseptic medicine should not be recommended, for the bowels are too much relaxed, and in too tender a state to bear any sharp, cold, or flatulent aliment or medicine; therefore in the cure of fluxes the patient must abstain from all fruit, except oranges. If there be a plethora, hæmorrhage, or any inflammatory symptoms, it will be necessary to take away a little blood, and immediately after give a vomit of ipecacoanha, especially

cially if there be any sickness at the stomach. Hippocrates very much recommends vomiting in the cure of a diarrhoea. When the disease has been of some standing, so that the bowels are much relaxed and the strength greatly impaired, an emetic will do little good, and sometimes may do hurt. Dr. Tournefort says, when the soldiers are much weakened by the distemper, and their bowels hurt, they do not bear a vomit, which often increases the looseness, and carries them off. Then the belly should be often fomented and wrapped up in warm flannels; broth clysters, and clysters made by boiling half a pound of suet and two spoonfuls of starch in a pint and a half of milk to a pint, taking off the fat as it rises upon the top. Half a grain of ipecacoanha, with twelve or fifteen grains of liquorice powder, should be given every hour, or hour and a half. Toasted rhubarb and nutmeg are very useful, and the common emulsion or white drink should be given occasionally, and Venice treacle, or some gentle cordial opiate, to lessen the great sensibility of the nerves, where the pain, griping and irritation are great and very troublesome. The patient should lie in bed, and be kept warm. When the disease is obstinate, the pain fixed, and does not yield to proper evacuations, then a blister may be applied to the part. A decoction of ipecacoanha and hartshorn shavings is a very good medicine; but I never had much satisfaction from the cerated glass of antimony, or a decoction of simaruba. Indeed since I found out, I may almost say, a specific in dysenteries of every kind, I never try any other medicine. Though those which have been mentioned are the best medicines generally known in this complaint, yet they very frequently fail of success; but the Antidysenteric Powder, which I administer in dysenteries and in the watery gripes in children, has never
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yet failed in one case, which is more than I can say of any other medicine in any other complaint. I have had more than one opportunity of giving it with success where one could hardly suppose that the case could admit of a cure, when petechiæ appeared, the patient very stupid and hardly sensible, the stools passing off involuntarily, and a low fever accompanying the other symptoms. The belly was fomented with flannels dipt in hot water with camphorated spirit of wine and sal ammoniac; after the fomentation the belly was well dried with hot flannels, and then wrapped round with some of the same, which were renewed every two hours; warm bricks were placed at the soles of the feet, from ten to fifteen drops of the Tonic tincture were given every four hours, and fifteen grains of the powder every two hours. In common cases this method never fails speedily to remove the complaint. The powder is made up of some of the ingredients of the Tonic tincture, and is preferable to it only in this complaint. The following medicines are very good in this disease.

N^o. I.

℞ C. C. C. ℥vj.

G. arab. ℥i.

coque in aq. fontan. q. f.

ad colaturæ cong. j. adde

ſpt. vin. ten. ℥ss. M. in diarrhœa bibat pro potu commune.

N^o. 2.

℞ Cort. ſemaruabæ ℥ss.

Aq. fontan. ℥ss. coque ad ℥j.

colaturæ capt. cochl. ij tertia quaq. hora.

N^o. 3.

N^o 3.

℞ Gum. arab. ʒi.
 Bol. armen. ʒij.
 Aq. commun. ʒiiijss.
 Spt. vin. gallic. ʒi.
 ——— lavendul. comp.
 Syr. balsam. āā ʒij. dos. cochl. ij quarta

N^o 4.

℞ Spt. vin. rectificat. ʒviij.
 Ol. menth. ——— ʒij.
 Sapon. venet. ʒfs. solve ventri ter quaterve indie
 applicentur lintea calida, linimento madefacta.

N^o 5.

℞ Decoct. commun. per clyster. ʒviij.
 Terebinth. venet. in vitell. ov. solut. ʒi.
 Tinct. aff. foetid. ʒfs. laudan. liquid. gut. 50
 M. f. enema.

In bloody fluxes the following clyster is very useful.

℞ Gelatin. amyli ʒiiij.
 Tinct. stiptic. ʒi. extr. thebaic. gr. ij. M.

Also Van Swieten's clyster for the excoriation of the rectum after a dysentery, and when the bowels are ulcerated; which is not uncommonly the case when the disease is of some standing, very virulent, and the putrid infection much concentrated.

℞ Terebinth. ʒi. vitell. ov. N^o j. solve & adde
 theriac. ʒfs. lac. recentis ʒv. M. f. enema.

Vander Heyden recommends whey clysters; and Sydenham recommends the same, and desires the patient to drink it.

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As astringent medicines, in the beginning of dysenteries, lock up the offending matter, they are very dangerous. Innumerable are the ill consequences that attend the improper and untimely stopping of dysenteries; but towards the end, when the bowels can bear it, the bark with red-wine in small quantities may be safely ventured upon. Some recommend the bark very early in dysenteries, but with what success I know not.

When the patient gets through this dangerous illness, he ought to guard against a relapse, and recover his lost strength by the cold bath, country air and gentle exercise, Tonic tincture or bark.

C H A P. XI.

Of the SCURVY and KING's-EVIL.

THE SCURVY, which is either leprous, scrophulous, or evilish, (for they are all different degrees of the same disease, and receive their diversity from the constitution) is a putrid disease, and arises from a slow general resolution or putrefaction of the whole frame, and is purely the natural effect of animal heat and motion caused by the action of the body. It chiefly affects the inhabitants of cold countries, because the cold corrugates the solids, prevents the sceptic matter from acting so strongly, and thereby converts the same disease into a chronic form, which in hot climates appears in putrid fevers, diarrhœas, &c. for the scurvy of the cold country is the putrid fever of the hot; their difference is only in degree, which arises from the opposite effects heat and cold have upon the

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the body. This disease is cured with more difficulty than other putrid diseases, because the frame of the constitution is constantly promoting the disease, and is perpetually sending fresh matter to support it, till at last it becomes universal, and is diversified according to the nature of the constitution; and as the disease advances, the constitution becomes proportionably weaker, till death at last closes the scene.

The distinctions of the scurvy into hot and cold, acid and alkaline, muriatic and putrid, are both unnecessary and injudicious. The causes and method of cure are the same in all, and the difference arises only from the constitution and the degree of malignity. In proportion to the different degrees of violence with which the predisposing causes act, the disease is more or less epidemic, and of various degrees of malignity. It is a most loathsome disease, and some of the best physicians think it a master-piece of art to cure it. It is a sea and a most grievous land calamity.

The sea and land scurvy is the same putrid disease, with this particular and very necessary distinction, that the sea scurvy does not arise from any spontaneous degeneracy of the human body, from a healthy condition into this morbid state, but from the influence of very powerful and active, but at the same time very plain and obvious causes, such as putrid and unwholesome food, which being received into the body, and converted into chyle, acts as a sceptic upon the fluids; and every supply the stomach receives producing chyle of the same quality, at last converts the whole juices into a state of putridity, though the patient has no constitutional tendency to that disease. The land scurvy is much more troublesome and difficult to cure, because it arises not so much from the
quality

quality of the food as from a fault in the vascular system. In the land scurvy the food, and consequently the chyle, receives its putrid tendency after it has entered the body, from a weakness of the organs of digestion, general relaxation, intemperance, and from every cause which promotes putrefaction. Here the disease is originally created, and nursed up by the body: but in the sea scurvy the food had acquired its malignant quality before it was received into the stomach, and the constitution became diseased by contact or infection, and not from any inherent fault of its own. Here lies the material difference in the cure of the sea and land scurvy. In the first remove only the cause, and the symptoms disappear. Let the sailor exchange his rotten salt beef for fruit and vegetables, his stinking drink for fresh liquor, his cold, damp air, for a warm, comfortable dry room, and he soon gets well. The cure of the land scurvy is a more arduous and difficult task, and requires much longer time to accomplish it. In proof of the identity of this disease at land and sea, we find that the productive causes of it at sea have the same effect at land. The symptoms in both cases are the same, and plainly indicate a putrid cause.

The Scrophula or King's-evil is a very obstinate complaint, and often perplexes the physician. It arises from the same causes, and chiefly affects the glands, particularly of the neck, arm-pits, groin, &c. and may therefore be called a local scurvy. They are all chronic diseases, slow in their advances, and require time and patience to obtain a perfect and lasting cure, which, though tedious, may at last be accomplished with much certainty, when the complaint is properly treated.

Young people are often troubled with a small degree of scurvy upon their arms, shoulders, thighs, and other parts

parts of the body, attended with heat and itching, chiefly at night; when the parts are scratched, they ooze out blood and matter, and scabs grow over them. This disorder is easily removed when taken in time, because the juices are little affected, and the solids in a pretty firm state; but if it be allowed to go on, it will terminate in a confirmed scurvy or leprosy.

The scurvy, and particularly the king's-evil, are commonly believed to be hereditary, which is partly true and partly false. I have, in a former part of this book, explained how far a disease may be called hereditary; and shall only here observe, that a child often inherits those constitutional infirmities of the parent, which arise from a fault in the solids or original stamina. If the parent has weak lungs, stomach or bowels, the child is more liable to that complaint, than if he had sprung from strong healthy parents who knew no such weakness; because the constitutional weakness of the parent disables him from forming the seminal stamina of that particular organ, where the weakness lies, with a proportionable strength to the rest of the body; and the structure and formation of the parts of a body may render it most liable to some particular diseases. In this light several diseases may be termed hereditary; but to say that the fomes morbi, or seeds of a disease, being suppressed, though not subdued, may lie dormant a whole generation, and break out in the succeeding one; and that the mass of blood, when once tainted, always retains the seeds of the distemper blended with it, and thereby acquires an aptitude to produce the disease, and waits only for the concurrence of a proper agent to set it a-going, seems to be an opinion that has no rational claim to belief. When a disease of the parent appears in the grand-child, I am apt to believe that he would

would have had the same complaint, if it had been utterly unknown to his predecessors.

Some ascribe the scurvy to the use of salted, dried, and smoaked flesh-meat; others to foggy moist air, or damp situations, or a want of a sufficient quantity of vegetables; whereas it proceeds from no single cause, but from a concurrence of pre-disposing causes; for one is generally found insufficient either to produce an epidemic or endemic scurvy. When many causes act in conjunction to produce it, the disease then may be heightened to an extreme degree of violence; and as they operate but slowly in the body, the progress of the malady is very gradual. One cause only may produce the scurvy in an individual, where the constitution was previously disposed to it.

Let us now endeavour to investigate the true causes of the scurvy, for by that means only shall we become qualified, not only to prevent its attacks, but to remove it when it happens.

The scurvy is induced chiefly by the agency of certain external remote causes, which, according as their existence is permanent or casual, and in proportion to the different degrees of violence with which they act, give rise to a disease more or less epidemic, and of various degrees of malignity. Thus where the causes productive of it are general and violent in a high degree, it becomes an epidemic or universal calamity, and rages with great and diffusive violence, as happens often to seamen in long voyages, frequently to troops when closely besieged, and at other times to whole countries. Where these causes are fixed and permanent, or almost always subsisting, it may be there said to be an endemic or a constant disease, as in Greenland, Iceland, Russia, Denmark, Sweden, Norway, and all the northern countries. Lastly, where

these causes prevail less frequently, and are more peculiar to the circumstances of a few, it may be there said to be sporadic, or a disease only here and there to be met with.

A combination of moisture with cold is the most frequent and genuine source of the scurvy. Moisture is the parent of corruption or putrefaction in nature; but when combined with other particular circumstances, as cold, gross diet, &c. its virulence is greatly augmented, and it then disposes in a particular manner to the scorbutic corruption. Thus we find it much more frequent in winter than in summer, and in cold than in warm countries. But the most intense degree of cold, if the air be dry and pure at the same time, will not produce the scurvy; and in very moist wet countries, when the climate is hot, it is little known. Though the scurvy has been known to attack mankind in a variety of different circumstances of life, these attacks have always been irregular and inconstant; but a combination of cold with moisture, when they are long enough continued, is upon all occasions experienced to be the most powerful pre-disposing cause to the scurvy, and seldom fails to produce it in a regular and constant manner, though indeed the latter of itself is found sufficient to produce it. After great rains, or a continuance of close foggy weather, especially after storms with rain, scorbutic people generally grow worse, but in dry warm weather the symptoms become milder. They who live in sea-port towns, in low, damp, and swampy soils, encompassed with much wood, or live near lakes or rivers, or where the water stagnates and becomes corrupted, and in every situation where there is a great quantity of moisture, and little influence or warmth from the sun, there the inhabitants are afflicted with putrid gums,

gums, œdematous swelled legs, with ulcers, and all the other symptoms of the scurvy.

Cold and moisture act in concert, by diminishing the force of the moving powers, and weaken and relax the whole system of the solids; for the strength and weakness of the fibres of our bodies in a great measure depend upon the state of the atmosphere. As the momentum of the circulating fluids greatly depends upon the strength and elasticity of the solids; and as nothing tends more to destroy that quality than too much moisture, moisture then acting long upon the body must weaken the moving powers, and thereby the circulating fluids or parts moved must creep on more slowly, and be longer detained in the body than by the laws of nature they ought, and in proportion as the vital impelling motion is lessened, their putrefactive tendency increases. But besides the debility of the moving powers, which arises from too much moisture, cold likewise co-operates with it in producing the same effect; but then we are only to understand this of the severer degrees of cold, when joined with moisture, and continued for some considerable time; for a moderate degree of cold, on the contrary, braces and strengthens the solids; but when it is severe and long continued, every one knows the effect to be numbness, loss of feeling and debility of the muscles to act in their usual manner, by which, and by the relaxing power of the moisture, the circulation must become slow, and as the vital motion decreases, the putrefactive ferment increases, till at last a putrid diathesis is generated, which will take place first in the extremities of the exhalant arteries, where the circulation is slowest; hence the livid spots and blotches which so often appear in scurvy.

Again, the obvious effect of cold upon the human body is to constrict the whole external habit, to corrugate and dry up the skin, and to diminish or obstruct insensible perspiration. If the constitution be weak, or where the person takes no exercise, and the degree of animal heat does not exceed that of the atmosphere, to counteract the effect of the external cold, perspiration will be lessened according to the different degrees of cold to which the body is exposed, the nîsus of the circulation will receive an internal direction, the larger viscera will labour under a plethora, and a constriction will be produced on the skin; the consequence of which is relaxation, and an unnatural tendency to putrefaction. We find such as use exercise and keep warm during cold weather, are not so subject to scorbutic complaints as those who are weak, use no exercise, and have little fire. But when moisture accompanies cold, the effects are still greater; for moisture in any climate is sufficient to obstruct perspiration, by stopping up the mouths of the cutaneous exhaling arteries. Therefore cold damp air, wet lodgings, damp beds or cloaths, are strong productive causes of scurvy. Hence in cold weather all the members of the body feel heavy, the appetite is diminished, the circulation is languid and feeble, and every one is sensible of a lassitude and lowness of spirits. Besides, moisture weakens the spring and elasticity of the air, and renders it unfit for the many salutary purposes obtained by respiration. From the impaired tone and action of the vessels, and the languid circulation of the blood, the food is not properly digested in the stomach, and that important office of sanguification is not duly performed, and the body is not properly nourished. During a moist cold condition of the air, wholesome food, but much more so when improper, or such as
affords

affords too viscid and tenacious chyle, can never rightly be converted into a vital juice, fit for the support and nourishment of the body. But persons in such a situation, where they are continually exposed to moist air, damp lodgings, new-built houses, wet cloaths, &c. absorb great quantities of the surrounding moisture, which becomes putrid in the body, like any dry substance put in contact with water. All spices, dry wood, or any thing not so wet as the surrounding air, suck up moisture in proportion to their heat, dryness and solidity; but the human body having inhaling vessels, sucks up wet faster than other bodies. Moist air too is loaded with more heterogeneous particles than dry air, and therefore may often produce bad effects, as much, or perhaps more, by absorption of these particles, than by stopping perspiration. But supposing these particles contained no peculiarly bad qualities, yet as it is universally allowed that moist, cold and unwholesome air, obstructs perspiration, and that the perspirable matter is very volatile and putrid, we are then at no loss to understand how such a state of the air should produce scurvies; and when loaded with putrid particles, how epidemic and contagious diseases should be produced.

Whoever considers the situation of a ship's crew exposed for many weeks to stormy, rainy, or perpetual foggy close weather at sea, will not be surprised to find the scurvy so common and virulent at sea.

As the atmosphere at sea is always moister than that of the land, hence there is always a greater disposition to the scorbutic diathesis at sea, than in a pure dry land air. But suppose the like constitution of air in both places, the inconveniencies which persons suffer in a ship during a damp wet season, are infinitely greater than people who live at land are exposed to. At land its pernicious effects

are guarded against by warm dry cloaths, fires, dry lodging, &c. whereas sailors are obliged not only to breathe in this air all day, but to sleep in it all night, frequently in wet cloaths, which (having no opportunity of drying them) remain sometimes long in that state. We all know the danger of sleeping in a damp house or bed. In damp weather the stagnating confined air below becomes more offensive and intolerable; and when this weather continues long, attended with sleet or rain, as it generally is, we may easily figure to ourselves the condition of the poor sailors, who are obliged to sleep in wet cloaths and damp beds, the decks swimming with water below them, and there to remain only four hours at a time, 'till they are again called up to fresh fatigue and hard labour, and exposed to the washings of the sea and to the rain. Long continuance of such weather never fails to produce the scurvy at sea. The qualities of a moist sea air are rendered still more noxious by being confined in a ship, without due circulation, where stagnating bilge water is pent up with it, and where it is much contaminated and impregnated with various putrid particles, by passing through the lungs of so many people, by want of cleanliness in a close place, and by the cutaneous perspiration of a multitude. We find that the officers on board of ships are less subject to the scurvy than the common men, because they are not so much exposed to the inconveniencies of damps and cold: they lie in drier and warmer beds, and warm, dry and clean cloaths, while the rest of the crew lie in wet beds, and wear damp cloaths for weeks together. The officers, even when they are obliged to live upon the ship's provisions, are seldom attacked with the scurvy, unless it has raged long and violently, and when the common sailors have been previously almost destroyed

destroyed by it. The officers are always the last that are infected.

The sea scurvy is supposed to arise from the great quantity of sea salt necessarily made use of by sailors in their diet, and has upon that account been called muriatic scurvy. But sea-salt, beyond a doubt, is not the cause of the scurvy, for the scurvy often breaks out at sea when there is plenty of fresh provisions on board. Salt provisions, it must be acknowledged, do not afford that soft mild aliment, which is required to repair the body with wholesome chyle, and, in conjunction with other causes, operate in disposing the body to the scurvy. But an additional and extremely powerful cause, observed at sea to occasion this disease, and which, co-operating with the former, seldom fails in time to breed it, is the want of fresh vegetables: the difficulty of getting them at sea, together with a long continuance in a moist cold air, with wet cloaths and unwholesome putrid and viscid food, such as rank pork, long salted beef, mouldy biscuit, flour, peas, and bad water, are the true causes of the frequency of it at sea. Such provisions will even produce the scurvy at land, especially in delicate constitutions, where the powers of digestion are naturally weak, or brought into that state by a preceding illness, or where the constitution is pre-disposed to a scorbutic taint by one or more of the causes already mentioned. But a strong healthy person, that uses proper exercise in a dry pure air, may live upon a sea diet for a considerable time without much inconveniency.

The next concurring cause which has so great an influence in disposing to the scurvy, and is peculiarly productive of it, is laziness and indolence of disposition, and from thence the neglect of using proper exercise. Every

one from experience must be sensible how much exercise contributes to the health of the body, as well as to cheerfulness of mind: it is necessary to keep up that due degree of firmness and tension in the solids, upon which the strength and soundness of the constitution depend, and which are acquired by such motions as increase the vital actions, upon which the whole process of digestion, as well as all the secretions, depend. Whenever the vital actions are impeded, which is most effectually done by keeping the body at rest, or by neglecting due exercise, there must follow a deficiency of the vigour and strength of the powers of digestion, so that they will not be sufficient to concoct and elaborate the aliment into wholesome chyle, especially if it be of too crude and viscid a nature; so that the body cannot be properly nourished, nor the secretions rightly performed, especially that of perspiration, which exercise powerfully promotes. Hence the scorbutic diathesis, want of proper digestion, weak and relaxed fibres, with a stoppage of perspiration. It is observable that the lazy, indolent and idle, or what the sailors call sculkers, have the scurvy sooner, or in a greater degree, than the rest of the crew. Though exercise is very necessary both in the prevention and cure of this disease, yet too violent exercise is as dangerous and prejudicial as too little.

The tenacity of gross viscid food, where the perspiration is already lessened by other disposing causes, in a manner stops it. Indeed such a diet naturally lessens it without the concurrence of other causes; for a regular perspiration can only arise from a duly prepared and well concocted fluid, obtained from such food as is then light and easy of digestion. All gross indigestible aliment is found to be unperspirable, and necessarily productive of obstructions,

obstructions, corruption, lassitude, grief, and heaviness of body. If the constitution be weakened by any former disease, the same effects will arise, with this additional circumstance, that most diseases leave a certain malignity or indisposition in the body, which exaggerate the symptoms. In such a case, if the food be not adapted to the state and condition of the body, if it is either received in too large a quantity, or is of a hard viscid nature, the body will not be properly nourished, and a scurvy will be produced.

Acute diseases imperfectly cured, and chronical diseases of long standing, more naturally degenerate into a scurvy than into any other disease; and whatever weakens and relaxes the body gives a tendency to the scurvy, which, properly speaking, includes most other chronical complaints. An inflammatory intermitting and remitting fever, if the patient lives long enough to undergo the transition, degenerates into a putrid one, which is the highest degree of scurvy, and if ill cured, often terminates in it. A nervous disease, dropsy, &c. arise from relaxation; and if long continued, discover pathogmoniac signs of the scurvy. Little regard ought to be paid to the names of diseases, which rather tend to deceive; a physician should attend to the state of the solids and fluids, without being solicitous to affix a name to the disease.

The passions of the mind; as discontent and fretfulness, frights, anger, fear, grief and melancholy, make a person more liable to this disease, and exaggerate the symptoms. Accordingly we find impressed men are most liable to it from that very cause, and a chearful and contented disposition is proportionably less subject to it.

The present state of the body has a powerful influence in disposing to this infection. They who are much exhausted

hausted and weakened by any tedious illness, or have unsound and obstructed viscera, are apt, by living in a cold damp air, or by the use of improper diet, to become scorbutic. Those that labour under a suppression of any natural evacuation, as women who have their courses suppressed, especially if the obstruction be occasioned by fear or grief, are more subject than others in similar circumstances to this disease. Women at the turn of life are liable to the scurvy. Surfeits, drinking cold water when overheated, bathing the feet in cold water at the time of the monthly purgations; in short, every thing that injures digestion, relaxes the body, obstructs perspiration, impedes the free circulation of the blood and induces a plethora, disposes the body to the scurvy.

People that have been deeply affected with this disease are very apt to relapse into different symptoms of it at different periods of their life afterwards; for the constitution, from labouring under it formerly, acquires a tendency to it, and any disposing cause soonest brings it upon such constitutions. There are likewise some particular constitutions, which, from a peculiar and natural tendency and disposition of their humours, are from much slighter causes, without any previous attack, more liable than others to fall into the scurvy.

A scorbutic taint is often mistaken for a nervous disorder; for people are too apt to call all symptoms, attended with lowness of spirits, nervous. If the patient has an universal lassitude, pains, which they term rheumatic, flying through the body, a breathlessness upon using exercise, an ill-coloured complexion, a listlessness and great inactivity, lowness of spirits and oppression; I would make no hesitation to pronounce such a case scorbutic, and treat it accordingly.

The first indication of the approach of the scurvy is generally a change of colour in the face, a spontaneous lassitude and heaviness of the body, with a listlessness to action, and great unwillingness and even aversion to any kind of motion or exercise: in the lips or caruncles of the eyes, where the blood-vessels lie most exposed, they appear of a gangrenous cast; mean while the person eats and drinks as usual, and makes no complaint. At first the face is pale and tawny, with somewhat of a yellow tinge; then it becomes darkish, livid and bloated. Indolence soon degenerates into an universal lassitude, with a stiffness, feebleness and weakness of the legs, but particularly of the knees, generally most sensibly felt in the night and upon using exercise, which fatigues much. The patient is short-breathed upon the least motion; the gums itch and become livid, red, swelled, spongy, hot and painful, are apt to bleed upon a slight touch, and soon become extremely putrid, stinking, enflamed, and separate from the teeth, leaving them loose and bare; the breath becomes offensive, a bad taste in the mouth; the skin feels dry; and in some, especially if feverish, it has a rough irregular appearance, commonly known by the name of goose skin; but in general it is smooth and shining, covered with several reddish, blueish, or rather black, livid, yellow or violet-coloured spots, equal with the surface of the skin, resembling an extravasation under it, as it were from a bruise. These spots are of different sizes, and appear first about old healed wounds, bruises or fractures. The legs often swell about the ankle; the swelling is first observed towards evening, and goes down next morning; but it slowly advances up the leg, and the whole member becomes œdematous; it does not so easily yield to the impression of the finger, but retains it longer than

than a true œdema. Sometimes the legs fall away, and become lank and small. If there be any local weakness, there the scorbutic symptoms make their first appearance. There is a great discharge of saliva; a pain often at the pit of the stomach. Scorbutic ulcers afford no good digestion, but a thin foetid sanious stuff mixed with blood, which appears like coagulated gore, and is with much difficulty wiped off. The flesh, under these sloughs, feels to the probe soft and spongy, and is very putrid. The edges of the ulcers are generally of a livid colour, and puffed up with excrescences of proud flesh arising from below, and when they are compressed by tight bandages, they become gangrenous, and the limbs get œdematous, painful and spotted. As the disease increases, they shoot out a soft bloody fungus, which often rises, in a night's time, to a great size, and though destroyed by caustics, is found to grow before next dressing; the slightest wound or bruise, in a scorbutic habit, degenerates into such ulcers. Whatever former complaint the patient has been afflicted with, generally returns, and exaggerates the scorbutic symptoms. Some complain of universal pain in all their bones, but violent in their limbs and small of the back, and in their joints and legs when swelled; the patient, particularly when he awakes in the morning, feels every joint and muscle as if tired and bruised. Most scorbutic people have a pain in some part of the breast, with tightness and oppression, and stitches upon coughing; a variety of pains in all parts of the body as cannot be expressed, viz. tense pulling, pricking, biting, gnawing, &c. on the muscles, membranes and nerves. These are commonly most severe in the night-time, when most scorbutic people have a sense of heat and pricking betwixt the skin and the flesh. The pains shift about, but are always exasperated

exasperated upon motion, especially the pain of the back. Scorbutic people are most subject to any epidemic or endemic disease that rages ; and if it be of the putrid kind, it produces the most fatal and malignant symptoms. The scurvy exaggerates the symptoms of every other disease, and every disease has the same effect upon it. The state of the air and situation of the place make a very considerable difference in the symptoms. When the disease advances, the flying pains generally fix in a particular part, most commonly in the side, and become so very severe as to affect the breath. It is seldom attended with a fever, but when a fever comes on, it generally proves fatal, and is for the most part of the low malignant intermittent kind. When a scorbutic patient is seized with a putrid jail or malignant fever, death is generally the greatest blessing he can receive on earth. According to the habit and constitution of the patient, there will be some diversity in the symptoms. Scorbutic people generally have a slight laxity, though sometimes costive ; the urine is very various at different times, but for the most part it is high-coloured, thick, turbid like new red-wine, soon becomes rank and foetid, and gathers an oily saline scum upon the top : the pulse is also various, but generally slow and feeble, or small, hard, irregular and quick ; sometimes rising all of a sudden for a few strokes, soon sinking, and always intermitting. The legs are sometimes covered with a dry scurf or scales, and at other times some small eruptions of a malignant kind appear. As the disease advances, the symptoms become worse. Sometimes the legs swell so monstruously, as to resemble the Elephantiasis of the Arabians ; while in others they are so extenuated, that the bones seem only covered with skin. The spots of some separate into blackish and dusky scales like

like the *Morphæa* of the Greeks; while in others they remain soft, smooth and shining: the true scorbutic spots are mostly of a livid colour, not commonly scurfy or raised above the skin. In those who die the spots sometimes disappear; at other times they break out afresh. There have been observed varicose swellings of the veins, as in those under the tongue and of the lower lip. Some of the ulcers upon the legs heal up, while others break out anew: they are with difficulty healed up, being extremely foetid, of a gangrenous disposition, and so putrid as not to feel sometimes the application of hot iron. When the disease is advanced beyond the first stage, mothers bear scorbutic children, are very apt to miscarry, and are very liable to the *fluor albus*. Sometimes there is a particular stiffness of the lower jaw; the tendons of the legs become stiff and contracted, and the patient commonly loses the use of his limbs; the joints swell and contract, and the bones grate upon one another; the person is subject to faint upon the least motion; profuse hæmorrhages from the nose, gums, intestines, lungs, or from old ulcers; violent dysenteries, with extreme pain; the gums for the most part become extremely fungous, with much stench, putrefaction and pain; sometimes deeply ulcerated, with a gangrenous aspect: the teeth become yellow, black and rotten, unaccountably loosen and loosen, and often fall out. Most scorbutic patients, though not all, have a good appetite even to the last, and preserve their senses entire, though much dejected and low-spirited. When they lie at rest in their beds, some make no complaint either of sickness or pain. Ulcers, wounds and sores, formerly healed up, generally break out afresh; the skin of the swelled legs often bursts, particularly where soft, painful livid swellings have been observed, and

and degenerate into crude, bloody, fungous ulcers. It is surprising how many are afflicted with fore ulcerated legs of a long standing, that have few other scorbutic symptoms. In some the flesh is blackish, and discharges a foul matter; in others the parts are white and scurfy, sometimes itching and much enflamed. When we consider the highest degree of corruption, which is sometimes met with in this disease, we shall find no reason to be surprised at the most extraordinary symptoms which occur in the advanced stages of it. Towards the last, some fall into colliquative putrid fevers, attended with petechiæ, fetid sweats, or sink under profuse evacuations of corrupted blood by stool and urine from the lungs, nose, stomach, hæmorrhoidal veins, or from obstructions and putrefaction in the abdominal viscera, particularly the liver and spleen, producing jaundice, dropy, hypochondriacal melancholy and despondency of mind, which is soon complicated with jaundice, dropy, bilious diarrhœa, or obstinate costiveness, slow fever, severe nervous rigors, violent cholics, &c. the belly sometimes swells and becomes painful, and the appetite goes sometimes entirely away. Towards the close of this violent disease, the patient is afflicted with a violent and uneasy straightness and oppression, accompanied with a pain under the sternum. The number and diversity of the symptoms in this disease, from the difference of constitution and other circumstances, are great; yet putrid gums, blueish and black spots in the body, and hard knots in the flesh, are certain characteristic and pathognomonic signs in every person.

It appears by the weakness and feebleness of the pulse, and by every other symptom in this disease, as likewise from the known effect of putrefaction upon animal bodies, by which the fibres are always rendered more soft and tender, that

that the whole system of solids is in the most relaxed and weakened condition. The blood in the beginning is loose, with different shades of light and dark streaks. As the disease advances, the blood, after standing some time, turns thick and of a dark muddy colour, the surface of a gangrenous hue, without any regular separation of parts. In the last stage it comes out of the veins as black as ink, and though stirred in a vessel for hours, its fibrous parts have only the appearance of a quantity of wool or hair floating in a muddy substance.

The symptoms of the scurvy, though many and various, are, from the known properties of matter, easily accounted for. The paleness of the face and bloated complexion arise from the weakness of the fibres, and the degeneracy of the humours from a sound healthy condition into a crude and morbid state. If the chyle, which is white when it enters the blood, remains there unsubdued by reason of its viscosity and the weakness of the solids and vital energy, it undergoes different changes of colour, and from white becomes yellow, green, livid, &c. which will be visibly discovered in the countenance through the transluent vessels of the skin. A pale complexion, whether scorbutic or otherwise, indicates weak solids. When the solids are so relaxed as not to be able properly to assist the fluids in their intestine progressive motion to the surface, they naturally acquire a retrograde motion, and the nisus of the circulation will be to the larger internal viscera; and the fluids will either stagnate in the lateral capillaries and cutaneous glands, or be extravasated in the tunica adiposa and cellular substance. The blue, red, yellow and black spots, which appear upon the body, proceed from extravasated blood under the skin; as long as the blood preserved its red colour, the spots are red;
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if the blood be black and coagulated, the spots are black. The flushings and small inflammatory pimples which some people have, particularly in the face, are confined to the capillary vessels and cutaneous glands, and may appear when there is but little scorbutic tendency in the blood. The small tumours, which, upon breaking, form scorbutic ulcers, proceed from the putrid blood with which the tumour was filled. In the extremities the circulation is most languid; hence we see the ancles and legs become first œdematous, and tumours form there. As animation, or vital power and vigour, are supported and preserved by well-conditioned chyle and blood, when that becomes deficient, a lassitude, heaviness, aversion to motion, a general prostration of strength, a panting and breathlessness upon the least exercise, and a proneness to faint, seize the patient; a quantity of ill-conditioned humours daily accumulate; the body, particularly the face, becomes pale, swelled and bloated; the lungs are loaded with serosities, which occasion the patient to feel stuffed, and his breathing oppressed, and is apt, upon exertion of strength or exercise, but especially upon being exposed to a sudden change of air, to drop down dead, because the blood is drove with greater force to the heart, the lungs and external surface of the body are constricted by the cold external air, which gives the blood a retrograde motion towards the internal viscera, the heart and larger vessels are loaded with an additional quantity of blood somewhat accelerated in its motion, the weak and delicate arterial system cannot overcome and propel the fluids, so the patient suddenly drops down dead. The humours becoming more and more dissolved, at last turn so putrid as to corrode, tear and destroy the vessels, which is the cause of the hæmorrhage; tho' some tender and delicate

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constitutions are subject to a hæmoptœ from a very trifling accident; but these hæmorrhages are seldom preceded by or attended with livid, violet-coloured, or any other eruptions; but even these hæmorrhages proceed from a bad state of the blood, and very tender and delicate vessels; they are not dangerous, and generally require little more for their cure than patience. The grating of the bones is occasioned by their rubbing against each other, the epiphyses being entirely separated from them, the ligaments of the joints wore loose and corroded, by the oily mucilage which lubricates and fills the joints, being either deficient, or degenerated into a green caustic liquor, which occasions the stiffness and want of motion in the joints; and the oily mucilage, that lubricates the flexor tendons of the ham and their sheaths, and fits them for motion, being of the same nature with the liquor found in the cavities of the joints, suffers the same changes, and they accordingly become hard, contracted, and unfit for motion. In such a state of almost universal corruption and putrefaction, we have no reason to be surprised at the other symptoms observed in scorbutic people, as soft, spongy and putrid gums, stinking breath, loose teeth, frequent hæmorrhages from all parts of the body, fluxes, dysenteries, the stagnating corrupted blood and humours bursting out upon the least rupture of the skin, or where there is a local weakness occasioned by some scar or old wound; when we consider that putrefaction is found to be the most subtle of all dissolvents, powerfully separating and resolving the component parts of putrifying bodies, and in particular breaking and dissolving the crasis of the blood; so that both here and in the plague the spots appear very much alike. The bones, though of a very hard and compact texture, like other parts of the body,

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are daily nourished and repaired by the aliment; they share in the same calamity, and are dissolved by the scorbutic taint, when it reaches their internal cellular substance. Now if the humours of the body, in the advanced stages of this disease, are capable of acquiring so corrosive a degree of acrimony, that like a menstruum they work upon and dissolve the cellular texture of the very bones, it is easy to suppose what direful dissolution they must make upon the other parts of the body; and that the nutritious particles are so much depraved, even in the beginning of the disease, or where there is only a scorbutic habit of body, that no callus can be formed, that a broken bone will not unite, and the callus of broken bones, which had been compleatly formed for a long time, are first dissolved, and the fracture appears as if it had never been united.

That the cause of the scurvy is a weak and relaxed state of the solids, a putrescent state of the fluids from obstructed perspiration, a want of a sufficient supply of proper chyle to correct and sweeten the acrid putrescent juices, &c. is evinced not only from the known and certain effects of the cause which gives rise to the disease, but from the obvious and constant symptoms of it. The lassitude, swelled and cedematous legs and spongy gums, denote the state of the solids; the foetid breath, stools, urine and blood, the condition of the fluids; the dry, rough and pellucid skin, proves a stoppage in perspiration.

As the solids are so much relaxed, warm diaphoretics cannot remove the constriction upon the surface, force the fluids to the extremities, and procure a free perspiration; and as the fluids are in so putrescent a state, change of air is not sufficient to restore them to a healthy state, nor can the lax solids be braced up while the juices remain in

that unsound state. Therefore the scurvy has been found in all ages very difficult to be cured.

In the cure of the scurvy we must in the first place remove the causes which first induced it. If the patient was exposed to cold, damp and unwholesome air, he must either be removed into a warm, dry and healthy air, or care should be taken to prevent the bad effects of the same air by warm cloathing, dry room, good fires, &c. People exposed to damp should be well cloathed, and put on dry cloaths as soon as possible. A flannel shirt next the skin is of very great service, by preventing the damp from affecting the body, and by assisting very greatly the operation of other remedies in the cure of the scurvy; for dryness, warmth and cleanliness of body, are excellent preservatives against this malady; and whatever promotes a free perspiration, which flannel certainly does in a very considerable degree, is of excellent service in the cure of this disease; therefore every scorbutic patient, and all that have not the benefit of pure wholesome air, warm dry lodgings, with proper conveniencies to guard against the inclemency of the weather or seasons, or live in a damp fenny country, or in the neighbourhood of much water, should wear flannel; for diseases are easier prevented than cured, and the best medicines, if administered too late, will fail of success: therefore certain precautions are necessary to prevent the first attacks of diseases.

As it is of the utmost consequence to guard against the first approaches of so dreadful an enemy, proper regard must be had not only to the state of the air, but also to the diet and regimen, as far as they can contribute to the general intention of prevention and cure. Vegetables are antiseptics, and correct the putrescency of the food; therefore when the scurvy is advanced to a very considerable

considerable degree, the patient should be confined entirely to a vegetable diet. In all scorbutic habits the food should be plain, small in quantity, not to oppress the organs of digestion, and to consist chiefly of vegetables, with very little flesh-meat, and less fish. Milk of all sorts is of great service where it agrees, as it is a true vegetable emulsion, or at least a very small degree removed from it. New well-baked bread, flummery, roasted and stewed apples, stewed barley with raisins or currants, sago with a little wine, bread pudding, sallads, fruit and vegetables, as cabbages, coleworts, leeks, onions, oranges, lemons, citrons, apples, vinegar, are good. In short, the food should be very light and easy of digestion, and the patient should eat very little at supper, except water-gruel, bread and milk, or some fruit baked, with a little bread in place of the crust. The drink should be cyder, perry, Rhenish wine, raspberry and all home-made wine, or a decoction of green wheat, vervain, inner bark of elder, dandelion, sorrel, scurvy-grass, &c. with rob of elder or honey a sufficient quantity to make it palatable, and a small quantity of Madeira, also spruce beer, whey, particularly that made from goats milk, juniper tea, or birch wine. Moderate exercise, contentment of mind, agreeable and entertaining amusements, dry, clean and warm beds, are very useful; and if the country is fenny, or the air wet and unhealthy, the moisture and unwholesomeness of the air must be remedied by keeping good fires. Rubbing the body night and morning with hot dry flannel will be found of great use.

Having now settled the preliminaries, we next proceed to the method of cure, which is performed by clearing the primæ viæ, and keeping the body open by gentle laxatives. But this disease, when in an advanced state,

will not bear bleeding or strong purges; for all strong purges, or whatever promotes a further dissolution of the blood, is very prejudicial. Vomits rather exaggerate the symptoms, and opium occasions great lowness and dejection of spirits, relaxes the solids, and adds to the complaint. When the body is at any time costive, or has a tendency to it, a decoction of tamarinds or prunes, or some gentle cooling physic, should be given. In whatever state the bowels are, especially for some time, there should be given twice a week

℞ Sal. polychrest. ʒiss,
 Pulv. rhab. gr. xij.
 Aq. hord. ʒiss.
 — cinnamom. simpl. ʒiij.
 Syr. ex alth. ʒiss plus vel minus f. haustus.

Or,

℞ Tamarind. ʒss.
 Senn. ʒi.
 Rhæi elect. ʒi.
 Sal. tartar. gr. viij.
 Infunde in fer. lact. calid. ʒiij per duodecim horas
 Colaturæ adde
 Mann. ʒvj M.

The next thing is to alter the state of the fluids by well-conditioned chyle, and what is opposite to the state of the blood; to assist the digestive and vital powers to convert the food into proper chyle; to enable nature to carry on a regular circulation; to remove the constriction upon the surface of the body; to give the blood a regular progressive motion, whereby the internal viscera may be relieved of the plethora, the outlets and emunctories of the body kept open and clear, and a gentle evacuation of
 the

the scorbutic humours promoted, which lessens the quantity, purifies the remainder, and restores the animal œconomy to its natural healthy state. These indications may be effectually answered by the judicious and long-continued use of tonic medicines and mild diaphoretics every night. The best tonic medicine in this disease is the Tonic tincture so often mentioned in this book : if long enough continued, it will do wonders in the cure of the scurvy. The next medicine in goodness is the bark, or some of the following. Sea-water and bathing in the sea, also all chalybeate purging water, do good in the beginning of this complaint.

N^o 1.

- ℞ Pil. aromatic. ʒiiss.
 Extr. gentian. N. M. ā ʒi.
 Pulv. croci ʒfs.
 Balf. traumatic. qs. f. Pil. mediocr. quarum capt.
 N^o 4. mane & hora pomeridiana.

N^o 2.

- ℞ Elix. hypochondriac.
 Balf. traumatic. āā ʒij.
 Sacchar. q. f.
 Spt. lavendul. ʒij M.
 Dos. cochl. min. iij ter in diē cum sacchar. alb. q. v.
 superbib. cyathum infus. flor. cham.

N^o 3.

- ℞ G. oliban. — myrrh. āā ʒi.
 — benzoin. ʒiss.
 Balf. tolutan. — peruvian. āā ʒi.
 Aloes socotorin. ʒi.
 Confect. Paulin. ʒi.
 Croci camphor. āā ʒiij.

Z 4

Spt.

Spt. vin. rect. ꝑiiss. infunde per mensem (Gum. primò in pulv. redact.) Dos. cochl. min. ij. cum sacchar. alb. q. s. ter in die.

N^o 4.

℞ Rad. rhæi incis. ʒij.

Cort. peruvian. elect. ʒi.

aurant. N. M. sem. card. min. āā ʒij.

Vin. alb. ꝑij. infunde frigide per quatuordecim dies colaturæ adde

Sacchar. cond. ʒij. Dos. cochl. j. bis in die.

N^o 5.

℞ Cort. peruvian. ʒij.

aurant. fl. hisp. ʒiss.

Rad. serpent. virgin. ʒij.

croc. anglic. ʒiiij.

coccinel. ʒij.

Spt. vin. gall. ʒxx. per dies aliquot, tres saltem, infunde & cola. Dos. cochl. min. ij. cum sacchar. alb. bis in die.

N^o 6.

℞ Cort. peruvian. crass. ʒij.

aurant. ʒij.

Rad. rhæi extr. flor. cham. āā ʒij.

Spt. vin. gall. ꝑiiss. infunde per dies aliquot.

N^o 7.

℞ Rad. rhæi ʒij.

glycyrrhizi ʒij.

Sacchar. cond. ʒi.

Uvar. pass. N^o 6.

Sem. anisi ʒi.

Spt. vin. tenuior. ꝑij. infunde & cola.

N^o 8.

N^o 8.

℞ Balf. peruvian. ʒij.
 Cort. aurant. ʒiij.
 Extract. croci ʒfs.
 absinth.
 gentian.
 flor. cham. āā ʒiij.

Rad. rhabarb.
 angelic. āā ʒfs.

Ol. N. M.

still. carui āā gut. xx.

Spt. vin. ten. ℥ij. infunde, subinde agitaas.

N^o 9.

℞ Decoct. (fortior.) cort. peruvian. ʒij.
 Spt. sal. marin. gut. v.
 Aq. N. M. ʒij. M. f. haustus.

N^o 10.

℞ Cort. ulmi ʒij.
 Rad. chinæ ʒfs.
 Aq. fontan. ℥ij. coque ad ℥ij.
 colaturæ adde
 Sal. nitr. ʒifs. vel tinct. canthar. gut. 20 ad 30.
 singul. dof.

A gentle diaphoresis should be promoted and encouraged by giving the Deobstruent Powder every third night, or some of the following medicines, in order to remove the spasmodic constriction upon the extreme vessels, to direct the nifus of the circulation to the surface, to open the obstructions, and to evacuate the putrid matter, to make room for healthy well-conditioned blood, and to restore the harmony of the animal œconomy.

N^o 1.

N° 1.

℞ Argent. viv. ʒiij.

—— grav. vel infect. ʒx.

Subinde adde cochl. min. essent. antimon. Huxam ;
tere simul ad ficcitatem in mortar. vitr. cum fundo arcto ;
& opus perpetuum ad diem sexagesimam deduce ut fiat
pulv. subtiliss. Dos. gr. v. ad xv. singulis noctibus, hora
som. superbib. haustum ser. vin. alb. calid.

N° 2.

℞ Julep. e camphor.

Spt. mindereri āā ʒiij.

Liquid. anodyn. mineral. Hoffmann. gut. viij.

Calc. antimon. illot. gr. x.

Aq. lactis ʒiij.

Syr. croci ʒifs. M. f. haustus h. f. sumend.

N° 3.

℞ Sulphur. aurat. antimon.

Calomel. āā ʒfs.

M. f. pulv. subtiliss. triterat. supra marmor.

Cui adde

G. guaiac.

Pulv. croci āā ʒiij.

Bals. copaib. qs. f. massa ʒfs pro dos.

N° 4.

℞ G. guaiac. gr. iij.

S. C. C. gr. ij.

Mercur. præcip. per se gr. ifs.

Extr. hellebor. nig. qs. f. Pil.

N° 5.

℞ Tart. emetic. gr. fs.

Antimon. diaphoretic. gr. xv.

C. C. C. camphor. āā gr. vi.

Syr. e meconio qs. f. pil. N° iij. dos. N° j.

N° 6.

N^o 6.

℞ Calomel. gr. ij.
Chyl. ℥ i.
Tart. emetic. gr. fs.
Croci gr. viij. M. f. pulvis.

N^o 7.

℞ Pulv. test. ostr.
Sal. ammon. crud. āā gr. xv.
Aq. cort. aurant. ℥ iss.
Syr. e cort. aurant. ℥ i. M.
Hora somni singulis noctibus sumendus.

When the legs are swelled, they should be fomented with warm discutient fomentations, or sweated by the steams of hot water, and then gently rubbed and wrapt up in warm flannel. If there are ulcers, they must be dressed with the Tonic tincture, which will very soon heal them up, though never so inveterate in any part of the body, without the least danger to the patient. All local pains are removed by chafing the part with the same, and putting a bit of flannel upon the part affected. Myrrh and Peruvian bark infused in red-wine, or dragons blood, allum, myrrh and cream of tartar, of each equal parts mixed into a powder, is very good for the teeth. Scorbutic diarrhæas are not suddenly to be stopped; they should, however, be regulated and moderated as directed in the former chapter. Flushing and scorbutic eruptions, and heats in the face, may be removed by wetting the parts affected with the following immediately before the patient goes to bed, and by taking N^o 7. every night for a short time, which will not fail to remove the symptoms:

℞ Hepar.

℞ Hepar. sulphur. ʒss.
 Aq. calcis simpl. ℔j.
 Coque ad ʒviij. & adde
 Effent. limon. gut. xv.

When the abdomen is tense and swelled, as much of the Tonic tincture should be rubbed into it as possible, and then wrapped up with flannels wetted in the same.

The prevention of this calamity at sea, and the preservation of a truly valuable part of mankind, I mean the sailors, from its fatal and destructive malignity in long voyages and cruises, is what in a particular manner demands our utmost attention. The world has almost despaired of finding out a method of preventing this dreadful evil at sea; and it is become a received opinion, that it is altogether impossible there either to prevent or cure it; but I hope this belief is ill-grounded, and that the Tonic tincture (observing at the same time the preventative regulations laid down in two former chapters) will be found a very great preservative against the scurvy at sea. It is perhaps the best sea medicine that can be put into the chest, and may be carried to the most distant parts of the world without losing its virtues. It may be taken in the morning, after a hard gale, and when the sailors are wet or tired, discretionally as a cordial, and by way of prevention. It prevents sea-sickness in most people, and renders it very moderate and trifling in all that have ever yet made use of it for that purpose. On such occasions it generally brings on a gentle purging, and the stools are commonly very bilious.

C H A P. XII.

Of the LEPROSY.

THE LEPROSY is a putrid disease, which in cold and temperate climates does not arrive at that degree of virulence as in hot countries. The leprosy of the Arabians, called Elephantiasis, from the roughness and inequality of the skin, resembling that of an elephant, seldom appears in this country in that frightful shape, described by antient authors, which has led the moderns too hastily to conclude, that the disease is known only by name in this climate; but it seems more probable that the Elephantiasis of the Arabians, the leprosy of the Jews, the *Lepra Græcorum* of the Greeks, and the modern leprosy, are the same disease, and that we are indebted to the climate for the mildness of it. Pliny, Tacitus, and other antient writers, mention it as infectious and hereditary. The Persians would not suffer a leprous person to come within their walls, from a belief, no doubt, of its being infectious. The laws of Moses and regulations amongst the Jews countenance such an opinion. How far a hot climate may increase the virulence of the disease, so as to make it endemical, I cannot pretend to say; here it is neither infectious nor hereditary. It seems as if both Jews and Arabians confounded the leprosy with the *Lues venerea*, a disease to which it is not much unlike.

The leprosy commonly makes its first appearance in small spots or bumps irregularly dispersed over various parts of the body, sometimes occupying one part, and
sometimes

sometimes another. The nose, neck and face, may be plentifully bespangled with those unseemly marks, while the arms, legs, and other parts of the body, escape quite free, and vice versa; yet when the legs, arms, face, or groin, retain only the visible marks of the disease, the whole mass of blood has by that time received the taint. The spots or specks commonly appear first on the face, forehead and nose, and by degrees spread over all the body; though in some patients they are confined a long time to one place. Some patients have the palms of their hands and soles of their feet like raw meat, while other parts of the body discover nothing of it. The leprosy sometimes attacks the patient almost insensibly; a few indolent tumours appear on various parts of the body, generally on the legs or arms, sometimes on the neck or breast, and at other times on the lobes or hollow of the ears; they increase by very slow degrees, without any previous or concomitant pain; in common they are red and tumid at first, but as the disease advances, they enlarge their size and increase in number, appear in various colours, and form into small clusters, with a rough, whitish, scaly coat. This scaly furfuraceous appearance is inseparable from the leprosy, and wherever it appears the complaint ought to be deemed leprous. The pustles are attended with great heat, and itch much; when they are scratched or squeezed, the scales fall off, and a thin ichor or bloody water oozes out, which at times is considerable in quantity, and has a bad smell; but they soon harden and dry again into their former scaly appearance. When they itch, it is a sure sign they are getting worse. In general they are better in summer than in winter. The clusters of pustles are at first small and few, three or four only on the leg or arm about the size of a silver penny;

penny ; but as the disease increafes, the cluſters become more numerous, and enlarge their dimensions to the bignefs of a crown-piece, not exactly round ; at laſt the whole body is cruſted or ſprinkled over with a white furfuraceous or brawny ſcurf or ſcab ; the ſkin is full of knobs, chops and fiſſures, hard, rough, and of an irregular thickneſs ; the ſpots become blackiſh ; the fleſh conſumes ; the mouth, hands, legs and feet, ſwell, and the bones themſelves do not eſcape. The pulse is at firſt low, but a fever comes towards the end, to terminate the fate of the unhappy victim. If the fever continues trifling, or goes off, the tubercles remain indolent, and in ſome degree ſchirrous, of a livid or copper colour, and ſometimes retain the natural colour of the ſkin, or at leaſt very imperceptibly altered. This, like every other diſeaſe, waxes ſtronger and ſtronger by age. The features of the face ſwell and enlarge greatly ; the eye-brows ſeem inflated ; the noſtrils enlarge their cavities outwardly, and inwardly contract them ; the hair of the eye-brows and beard fall off ; ſometimes the cartilage and ſeptum naſi being corroded, occaſion the noſe to flatten ; the lips are tumified and beſet with ulcers ; the throat, gums and ears, have the ſame unſeemly company ; the voice is hoarſe and ſnuffling ; the lobes of the ears are thickened, and turned backwards ; the forehead protuberant, and the face of a purple colour ; the veins under the tongue varicofe and black ; the nails loſe their ſmooth clear ſurface, and become ſcaly, rough and opake ; the muſcles between the fore-finger and thumb become flabby and waſted ; the breath very offenſive ; the whole ſkin, particularly the face, has either the opake furfuraceous appearance already mentioned, or is remarkably ſhining. As the diſeaſe advances, the legs ſwell to an enormous ſize, are
hard

hard and indurated, and have more the feel of a log of wood than of flesh. The patient discovers little sensation from any outward application, and in some the motion of the fingers and toes is quite destroyed; the legs hardly yield to a very strong pressure, and if you make an incision a tenth of an inch or two deep, the patient seldom feels it. In fact, they are rather posts than legs covered with dull whitish scabs, interspersed with deep fissures, and irregularly dispersed tubercles, which often ulcerate; in others the legs are emaciated and overspread with tumours, which frequently become gangrenous ulcers, and discharge a fetid ichorous humour in small quantities, but never form laudable pus. The fingers and toes are hid with a swelling, and often rot and separate joint after joint. The bones themselves do not escape the common calamity. Wiseman calls it an universal cancer of the whole body, and says that the white scurf proceeds from a vicious salt in the blood, that diminishes its serum, which, in place of being carried off by transpiration, is converted into a dry salt itching scab. Some think it a gross atrabilious matter, arising from evil diet and a dry intemperies of the skin, a suppression of the hæmorrhoids or menses, a quartan ague, &c. and to proceed by infection as the itch does.

The antient writers were of opinion, that this loathsome disease had its rise from errors in diet. The moderns have advanced various opinions concerning the nature of it. When the disease was recent, the antient physicians had hopes of curing it; but when it was of long duration, they absolutely despaired, and pronounced it incurable. That the modern practice is attended with little better success, some of the most eminent writers, at different times, bear testimony.

The

The medicines recommended by the antients are trifling, and not worth mention. The moderns have unsuccessfully gone through the whole *Materia Medica*. They have in vain tried to force the peccant matter through the pores of the skin by warm diaphoretics, to precipitate it through the kidneys by saline draughts, with different preparations of antimony, sublimate, cantharides, neutral salts, &c. The bowels have been as unsuccessfully tried with strong and mild purgatives; bleeding has given no relief; alteratives variously combined, sal diureticus, solutions of cream of tartar, sal prunell, &c. have, after a tedious perseverance, disappointed both the physician and patient. Chalybeates are often recommended in the leprosy, but they rather increase than diminish the impetiginous eruptions. Bathing in hot water, which carries off by plentiful sweating the humours of the whole body, and cleanses the pores of the skin, though at the first appearance it seems very proper in the leprosy, yet it is often so far from relieving, that the breakings out are frequently increased and exaggerated by it; and many patients, by bathing, have become all over leprous, that had at first a few spots only. In the leprosy the whole juices are tainted, and bathing only inspissates the blood, and throws more of the peccant matter upon the skin. In the city of Bath they have what is called the Leper's Bath; but there I verily believe fewer leprous patients at least are cured than people imagine. In weakness of the stomach or bowels, in low relaxed palfical habits, and where the constitution is much injured by intemperance, Bath waters will do good; but relaxation from business, exercise, change of air, temperance, and that thoughtless loitering life pursued in

that metropolis of folly and idleness, contribute more to promote the credit of the waters than their own inherent virtues. It is a cruel robbery to take from the widow her poor mite; yet that is the case of the Bath waters. Summer and the hottest months in the year are the proper times for drinking the Bath water; but in spite of reason and experience, as it is the fashion, they go to Bath in winter, and not contented with that, they build their houses upon the rising ground, where the moisture arising from the heat of the waters is again condensed by the cold, and falls where the most fashionable buildings now stand. The most superficial observer may convince himself of the truth of this remark, by observing how soon that green moss grows upon the walls, and what difficulty there is to keep plate, sweet-meats, &c. in the upper parts of the town: the situation too is bleak and exposed, and the keen winds corrugate and occasion a spasmodic constriction of the skin, obstruct perspiration, and precipitate the water, as fast as they drink it, through the kidneys, without remaining a sufficient time in the body to be of service. The Bath waters do good by strengthening the internal viscera, removing the plethora of the larger vessels, invigorating the animal powers, directing the nîsus of the circulation more forcibly to the external parts, and by opening the capillary obstruction and promoting a free perspiration; but these intentions are effectually counteracted by cold, damp or bleak winds.

Hot aromatics are very improper in the leprosy. Some physicians have recommended tin with antimony and viper broth, but their success has given little countenance to their practice. When these methods avail nothing, the patient is advised to submit to salivation, to which
some

Some have repeatedly submitted without receiving any benefit; yet I am fully persuaded that mercury does no hurt but service in the leprosy, and every other putrid disease. Mercury, judiciously managed, assimilates the juices, opens obstructions, preserves the secretory and excretory vessels in such a state that the secretions are regularly performed, that the excrementitious and noxious parts of the whole body may be carried off in due time: it increases the velocity of the blood, and acts upon the juices in the vessels somewhat similar to the action of the lungs upon the blood, received from the heart; it circulates in its metallic state; and the longer it is preserved in that state, and the more minutely it is divided, the greater virtues it possesses. Much good may be done in this complaint by the judicious exhibition of mercury.

From every symptom of this disease it plainly appears to be of the putrid kind, and may be induced from various causes, as long illness, acute fevers, surfeits, gross feeding, obstinate intermittents imperfectly cured, intemperance, &c.

The same medicines and method of treatment recommended in the scurvy will succeed equally well in the leprosy. After clearing the *primæ viæ*, and diminishing the plethora by gentle laxatives, the Deobstruent powder, or any of the diaphoretics with camphor recommended in the former chapter, should be given every night; and the Tonic tincture, or some of the tonic medicines of the same chapter, in the day. The patient should take a cooling dose of physic twice a week, and have his body washed with soap and warm water every night, and rubbed in the morning with warm flannels. If the scales do not fall off by that means, they may be gently scraped off,
a few

a few at a time, with a sharp knife, and the part wetted with the Tonic tincture. The ulcers and fissures should be dressed with the Tonic tincture, and where there is any local pain, the part affected should be chafed with the same. The patient should wear flannel next the skin, live mostly upon vegetables, and observe very strictly the directions given in the three preceding chapters about food, air, exercise, &c. By such a course the leprosy may be cured in its most advanced stages.

F I N I S.

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